

7th Grade
Math
Notebook

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Chapter 1

Chapter 1: Ratios and Proportional Reasoning - Lesson 1: Rates

Adrienne biked 24 miles in 4 hours. If she biked at a constant speed, how many miles did she ride in one hour.

Find the unit price if it costs \$2 for eight juice boxes.

A ratio that compares _____ quantities with different kinds of units is called a _____.

When a rate is simplified so that it has a denominator of ____ unit, it is called a _____.

The prices of 3 different bags of dog food are given in the table. Which size bag has the lowest price per pound rounded to the nearest cent?

Lexi painted 2 faces in 8 minutes at the Crafts Fair. At this rate, how many faces can she paint in 40 minutes?

| Bag Size | Price |
|----------|-------|
| 40 | 49.00 |
| 20 | 23.44 |
| 8 | 9.88 |

Chapter 1: Ratios and Proportional Reasoning - Lesson 1: Rates

Find the unit rate. Round to the nearest hundredth if necessary.

\$300 for 6 hours

Find the unit price if a 4-pack of mixed fruit sells for \$2.12.

A ratio that compares _____ quantities with different kinds of units is called a _____.

When a rate is simplified so that it has a denominator of ____ unit, it is called a _____.

Tito wants buy some peanut butter to donate to the locale food pantry. Tito wants to buy as much peanut butter as possible. Which brand should he buy?

After 3.5 hours, Pasha had traveled 217 miles. If she travels at a constant speed, how far will she have traveled after 4 hours?

| Brand | Sale Price |
|------------|-----------------|
| Nutty | 12oz for \$2.19 |
| Grandma's | 18oz for \$2.79 |
| Bee's | 28oz for \$4.69 |
| Save-A-Lot | 40oz for \$6.60 |

Simplify $\frac{\frac{1}{4}}{2}$

Simplify $\frac{2}{\frac{1}{2}}$

Fractions like _____ are called

_____ fractions.

Complex fractions are fractions with a numerator, denominator, or both that are also _____.

Complex fractions are simplified when both the _____ and

_____ are

_____.

When the _____ of a complex fraction represents different units, you can find the unit rate.

Tia is painting her house. She paints

$34\frac{1}{2}$ square

feet in $\frac{3}{4}$ hour. At this rate, how many square feet can she paint each hour?

On Javier's soccer team, about

$33\frac{1}{3}\%$ of the players have scored a goal. Write

$33\frac{1}{3}\%$ as a fraction in the simplest form.

Chapter 1: Ratios and Proportional Reasoning - Lesson 2: Complex Fractions and Unit Rates

Simplify $\frac{\frac{2}{4}}{2}$

Simplify $\frac{2}{\frac{2}{3}}$

Fractions like _____ are called

_____ fractions.

Complex fractions are fractions with a numerator, denominator, or both that are also _____.

Complex fractions are simplified when both the _____ and _____ are

_____.

When the _____ of a complex fraction represents different units, you can find the unit rate.

Josiah can jog $1\frac{1}{3}$ miles in $\frac{1}{4}$ hour. Find his average speed in miles per hour.

A county sales tax is $3\frac{1}{2}\%$. Write the percent as a fraction in simplest form.

Chapter 1: Ratios and Proportional Reasoning - Lesson 3: Convert Unit Rates

A remote control car travels at a rate of 10 feet per second. How many inches per second is this?

A swordfish can swim at a rate of 60 miles per hour. How many feet per hour is this?

You can convert one rate to an _____ rate by _____ by a unit ratio or its reciprocal. When you convert rates, you include the units in your computation.

The process of including units of _____ as factors when you compute is called dimensional _____.

$$\frac{10\text{ft}}{1\text{s}} = \frac{10\text{ft}}{1\text{s}} \quad \frac{12\text{in}}{1} = \frac{10}{1\text{s}} \quad \frac{12\text{in}}{1} = \frac{120\text{in}}{1\text{s}}$$

Marvin walks at a speed of 7 feet per second. How many feet per hour is this?

The average speed of one team in a relay race is about 10 miles per hour. What is this speed in feet per second?

Chapter 1: Ratios and Proportional Reasoning - Lesson 3: Convert Unit Rates

Water weighs about 8.34 pounds per gallon. About how many ounce per gallon is the weight of the water.

A gull can fly at a speed of 22 miles per hour. About how many feet per hour can the gull fly?

You can convert one rate to an _____ rate by _____ by a unit ratio or its reciprocal. When you convert rates, you include the units in your computation.

The process of including units of _____ as factors when you compute is called dimensional _____.

$$\frac{10\text{ft}}{1\text{s}} = \frac{10\text{ft}}{1\text{s}} \quad \frac{12\text{in}}{1} = \frac{10}{1\text{s}} \quad \frac{12\text{in}}{1} = \frac{120\text{in}}{1\text{s}}$$

An AMTRAK train travels at 125 miles per hour. Convert the speed to miles per minute. Round to the nearest tenth.

Lorenzo rides his bike at a rate of 5 yards per second. About how many miles per hour can Lorenzo ride his bike? (Hint: 1 mile = 1,760 yards)

Chapter 1: Ratios and Proportional Reasoning - Lesson 4: Proportional and Nonproportional Relationships

Andrew earns \$18 per hour for mowing lawns. Is the amount of money he earns proportional to the number of hours he spends mowing?

Explain: _____

| | | | | |
|---------------|---|---|---|---|
| Earnings (\$) | | | | |
| Time (h) | 1 | 2 | 3 | 4 |

Uptown Tickets charges \$7 per baseball game ticket plus a \$3 processing fee per order. Is the cost of an order proportional to the number of tickets ordered?

Explain: _____

| | | | | |
|-----------------|----|---|---|---|
| Cost (\$) | 10 | 7 | | |
| Tickets Ordered | 1 | 2 | 3 | 4 |

Two quantities are proportional if they have a _____ ratio or _____ rate. For relationships in which this ratio is not _____, the two quantities are nonproportional.

_____ ratios all have the same value.

You can use the recipe shown to make a fruit punch. Is the amount of sugar used proportional to the amount of mix used?

Explain: _____

| | | | | |
|------------------|---------------|---|----------------|---|
| Cups of Sugar | $\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | 2 |
| Envelopes of Mix | 1 | 2 | 3 | 4 |

The tables shown represent the number of pages Martin and Gabriel read over time. Which situation represents a proportional relationship

between the time spent reading and the number of pages read?

Explain: _____

| | | | |
|--------------------|---|----|----|
| Pages Gabriel Read | 3 | 4 | 7 |
| Time (min) | 5 | 10 | 15 |

| | | | |
|-------------------|---|----|----|
| Pages Martin Read | 2 | 4 | 6 |
| Time (min) | 5 | 10 | 15 |

Chapter 1: Ratios and Proportional Reasoning - Lesson 4: Proportional and Nonproportional Relationships

At Lakeview Middle School, there are 2 homeroom teachers assigned to every 48 student. Is the number of student at this school proportional to the number of teachers?

Explain: _____

| | | | |
|-------------------|---|---|---|
| Homeroom Teachers | 2 | 4 | 6 |
| Students | | | |

The Vista Marina rents boats for \$25 per hour. In addition to the rental fee, there is a \$12 charge for fuel. Is the number of hours you can rent the boat proportional to the total cost?

Explain: _____

| | | | | |
|-----------------|----|----|---|---|
| Cost (\$) | 37 | 62 | | |
| Tickets Ordered | 1 | 2 | 3 | 4 |

Two quantities are proportional if they have a _____ ratio or _____ rate. For relationships in which this ratio is not _____, the two quantities are nonproportional.

_____ ratios all have the same value.

At the beginning of the year, Isabel had \$120 in the bank. Each week, she deposited another \$20. Is her account balance proportional to the number of weeks of deposits? Use the table below.

Explain: _____

| | | | |
|---------------|---|---|---|
| Time (wk) | 1 | 2 | 3 |
| Ballance (\$) | | | |

Which situation represents a proportional relationship between the hours worked and amount earned for Matt and Jane?

Explain: _____

| | | | |
|-----------------|----|----|----|
| Matt's Earnings | 12 | 20 | 31 |
| Time (h) | 1 | 2 | 3 |

| | | | |
|-----------------|----|----|----|
| Jane's Earnings | 12 | 24 | 36 |
| Time (h) | 1 | 2 | 3 |

Chapter 1: Ratios and Proportional Reasoning - Lesson 5: Graph Proportional Relationships

The slowest mammal on Earth is the tree sloth. It moves at a speed of 6 feet per minute. Determine whether the number of feet the sloth move is proportional to the number of minutes it moves by graphing on the coordinate plane. Explain your reasoning.

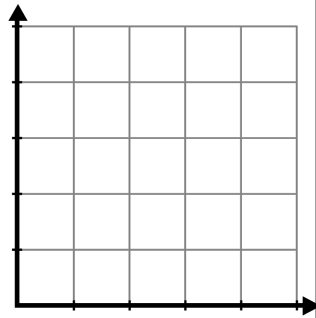
Explain: _____

| Time | Distance |
|------|----------|
| 0 | 0 |
| 1 | |
| 2 | |
| 3 | |

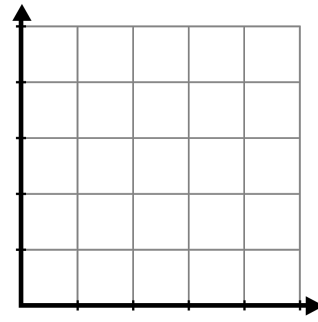
The cost of renting video games from Games Inc. is shown in the table. Determine whether the cost is proportional to the number games rented by graphing on the coordinate plane. Explain your reasoning.

| Number of Games | Cost (\$) |
|-----------------|-----------|
| 1 | 3 |
| 2 | 5 |
| 3 | 7 |
| 4 | 9 |

Explain: _____



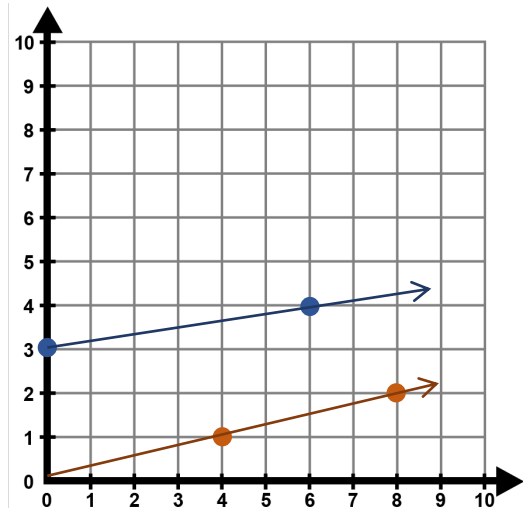
The coordinate plane is formed when two number lines _____ at their zero points. The number lines separate the _____ plane into four regions called _____.
 An _____ pair is a pair of numbers used to _____ or graph points on the coordinate plane.



Which batting cage shown in the graph to the right represents a proportional relationship between the number of pitchers thrown and the cost? **Softball Plus** or **Fun Center**?

Another way to determine whether two quantities are _____ is to graph the quantities on the coordinate plane. If the graph of the two quantities is a _____ line through the origin, then the two quantities are proportional.

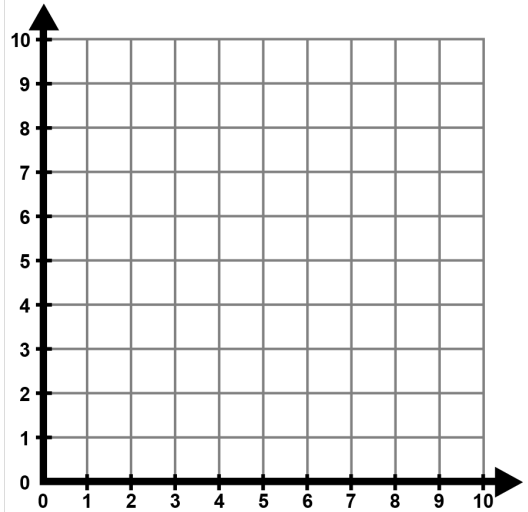
Explain: _____



Chapter 1: Ratios and Proportional Reasoning - Lesson 5: Graph Proportional Relationships

James earns \$5 an hour babysitting. Determine whether the amount of money James earns babysitting is proportional to the number of hours he babysits by graphing on the coordinate plane. Explain your reasoning.

Explain: _____



| Time | Earnings |
|------|----------|
| 0 | 0 |
| 1 | |
| 2 | |
| 3 | |

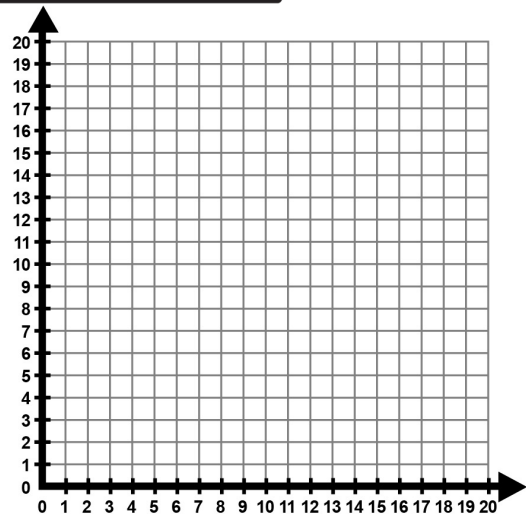
The coordinate plane is formed when two number lines _____ at their zero points. The number lines separate the _____ plane into four regions called _____.
 An _____ pair is a pair of numbers used to _____ or graph points on the coordinate plane.

Another way to determine whether two quantities are _____ is to graph the quantities on the coordinate plane. If the graph of the two quantities is a _____ line through the origin, then the two quantities are proportional.

| Minutes | Calories |
|---------|----------|
| 0 | 0 |
| 1 | 4 |
| 2 | 8 |
| 3 | 13 |

The table to the right shows the number of Calories an athlete burned per minute of exercise. Determine whether the number of Calories burned is proportional to the number of minutes by graphing on the coordinate plane. Explain your reasoning.

Explain: _____



Chapter 1: Ratios and Proportional Reasoning - Lesson 6: Solve Proportional Relationships

After 2 hours, the air temperature had risen 7°F . Write and solve a proportion to find the amount of time it will take at this rate for the temperature to rise an additional 13°F .

$\frac{\text{temperature}}{\text{time}}$

_____ = _____

If the ratio of Type O to non-Type O donors at a blood drive was 37:43, how many donors would be Type O, out of 300 donors?

$\frac{\text{type O donors}}{\text{total donors}}$

_____ = _____

A proportion is an _____ stating that two ratios are rates are _____. Consider the following proportion:

$$\frac{a}{b} = \frac{c}{d}$$

$$\frac{a}{b} \cdot bd = \frac{c}{d} \cdot bd$$

$$ad = bc$$

The products ab and bc are called the _____ products of this proportion.

The cross products are _____.

You can also use the _____ rate to write an _____ expressing the relationship between two proportional quantities.

Olivia brought 6 containers of yogurt for \$7.68. Write an equation relating the cost c to the number of yogurts y . How much would Olivia pay for 10 yogurts at this same rate?

$\frac{\text{cost in dollars}}{\text{containers of yogurt}}$

_____ = _____

Jaycee bought 8 gallons of gas for \$31.12. Write an equation relating the cost c to the number of gallons g of gas. How much would Jaycee pay for 11 gallons at this same rate?

$\frac{\text{price}}{\text{gallons}}$

_____ = _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 6: Solve Proportional Relationships

$$\frac{x}{4} = \frac{9}{10}$$

The ratio of 7th grade students to 8th grade students in a soccer league is 17:23. If there are 200 students in all, how many are in the 7th grade?

$$\frac{\text{7th graders}}{\text{total students}}$$

$$=$$

A proportion is an _____ stating that two ratios are rates are _____. Consider the following proportion:

$$\frac{a}{b} = \frac{c}{d}$$

$$\frac{a}{b} \cdot bd = \frac{c}{d} \cdot bd$$

$$ad = bc$$

The products ab and bc are called the _____ products of this proportion. The cross products are _____.

You can also use the _____ rate to write an _____ expressing the relationship between two proportional quantities.

$$\frac{7}{3} = \frac{n}{21}$$

Olivia typed 2 pages in 15 minutes. Write an equation relating the number of minutes m to the number of pages p typed. How long will it take her to type 10 pages at this rate?

$$\frac{\text{minutes}}{\text{pages}}$$

$$=$$

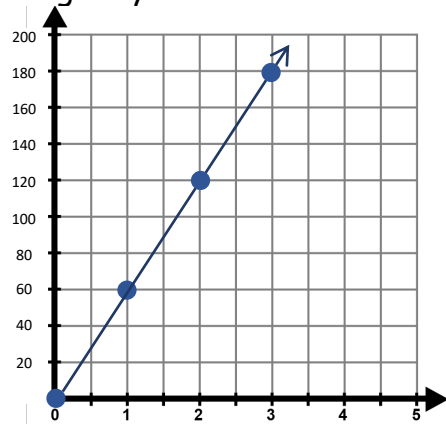
Chapter 1: Ratios and Proportional Reasoning - Lesson 7: Constant Rate of Change

The table shows the amount of money a booster club makes washing cars for a fundraiser. Use the information to find the constant rate of change in dollars per car.

$$\frac{\text{change in money}}{\text{change in cars}}$$

| Number | Money |
|--------|-------|
| 5 | 40 |
| 10 | 80 |
| 15 | 120 |
| 20 | 160 |

The graph represents the distance traveled while driving on a highway. Find the constant rate of change.



A rate of change is a rate that describes how one quantity _____ in relation to _____. In a _____ relationship, the rate of change between any two quantities is the same. A linear relationship has a _____ rate of change.

$$\frac{\text{change in miles}}{\text{change in hours}}$$

Explain what the points (0, 0) and (1, 60) represent in the previous problem.

You can use a table to find a _____ rate of change.

You can also use a _____ to find a constant rate of change and to _____ points on the graph.

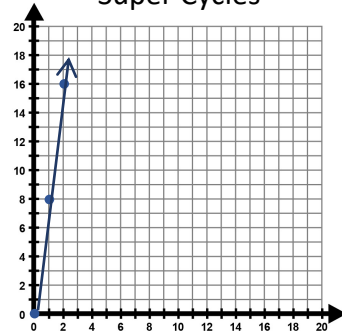
The table and graph below show the hourly charge to rent a bicycle at two different stores. Which store charges more per bicycle. Explain

Explain: _____

Pedal Rentals

| Hours | Cost |
|-------|------|
| 2 | 24 |
| 3 | 36 |
| 4 | 48 |

Super Cycles



Explain: _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 7: Constant Rate of Change

The table shows the number of miles a plane traveled while in flight. Use the information to find the approximate constant rate of change in miles per minute.

$$\frac{\text{change in distance}}{\text{change in time}}$$

| Time | Distance |
|------|----------|
| 30 | 290 |
| 60 | 580 |
| 90 | 870 |
| 120 | 1160 |

The table shows the number of students that buses can transport. Use the table to find the constant rate of change in students per school bus.

$$\frac{\text{change in \# of students}}{\text{change in \# of buses}}$$

| Buses | Students |
|-------|----------|
| 2 | 144 |
| 3 | 216 |
| 4 | 288 |
| 5 | 360 |

A rate of change is a rate that describes how one quantity _____ in relation to _____. In a _____ relationship, the rate of change between any two quantities is the same. A linear relationship has a _____ rate of change.

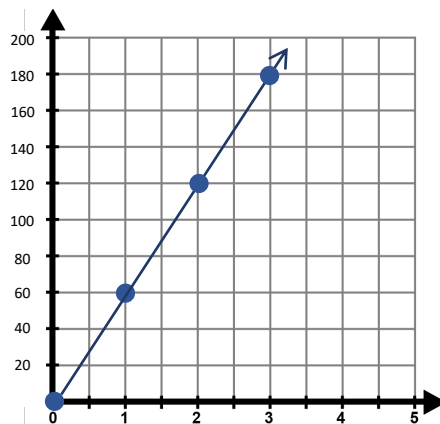
The table and graph below show the hourly charge to rent a bicycle at two different stores. Which store charges more per bicycle. Explain

You can use a table to find a _____ rate of change.

You can also use a _____ to find a constant rate of change and to _____ points on the graph.

Explain what the points (0, 0) and (1, 30) represent in the previous problem.

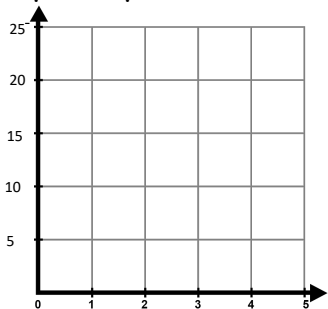
$$\frac{\text{change in distance}}{\text{change in time}}$$



Explain: _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 8: Slope

The table below shows the relationship between the number of seconds y it takes to hear thunder after a lightning strike the miles x you are from the lightning. Graph the data and find the slope. Explain what the slope represents.



| Seconds | Miles |
|---------|-------|
| 0 | 0 |
| 5 | 1 |
| 10 | 2 |
| 15 | 3 |
| 20 | 4 |
| 25 | 5 |

Slope is the rate of _____ between any two point on a line.

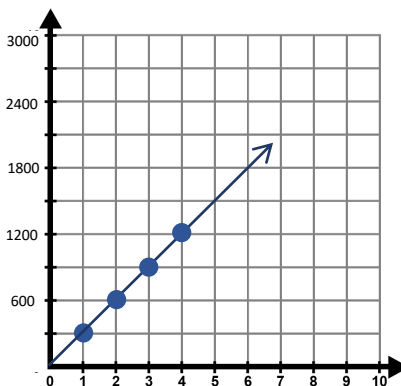
In a _____ relationship, the vertical change (____-value) per unit of horizontal change (____-value) is always the _____. This ratio is called the _____ of the function. The _____ rate of change, or _____ rate, is the same as the slope of the related linear relationship.

The slope tells how _____ the line is. The vertical change is called the _____ while the horizontal change is called the _____.

slope = _____

Explain: _____

Renaldo opened a savings account. Each week he deposits \$300. Draw a graph of the account balance versus time. Find the numerical value of the slope and interpret it in words



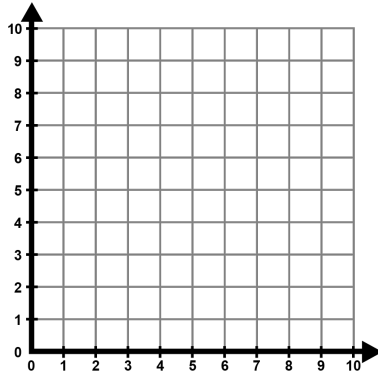
slope = _____

Explain: _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 8: Slope

Graph the data about plant height for a science fair project. Then find the slope of the line. Explain what the slope represents.

| Week | Height |
|------|--------|
| 1 | 1.5 |
| 2 | 3 |
| 3 | 4.5 |
| 4 | 6 |



slope = _____

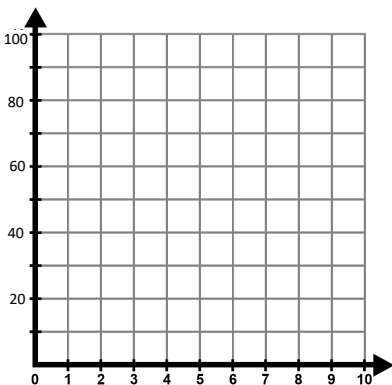
Explain: _____

Slope is the rate of _____ between any two point on a line.

In a _____ relationship, the vertical change (____-value) per unit of horizontal change (____-value) is always the _____. This ratio is called the _____ of the function. The _____ rate of change, or _____ rate, is the same as the slope of the related linear relationship.

The slope tells how _____ the line is. The vertical change is called the _____ while the horizontal change is called the _____.

Jessica has a balance of \$45 on her cell phone account. She adds \$10 each week for the next four weeks. Graph the account balance versus time. Find the numerical value of the slope and interpret it in words.

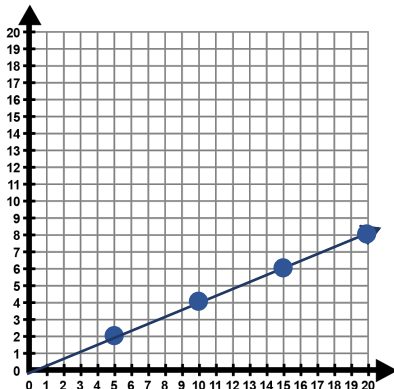


slope = _____

Explain: _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 9: Direct Variation

The height of the water as a pool is being filled is shown in the graph. Determine the rate in inches per minute.



height
time

The equation $y=10x$ represents the amount of money y Julio earns for x hours of work. Identify the constant of proportionality. Explain what it represents in this situation.

Explain: _____

A _____ relationship is a direct variation when the ration of y to x is a _____, k . We say _____ varies directly with _____.

$$y = kx$$

When two _____ quantities have a _____ ratio, their relationship is called a direct variation. The constant ratio is called the _____ of variation, also known as the _____ of proportionality.

Not all situations with a _____ rate of change are proportional relationships, and not all _____ functions are direct variations.

Pizzas cost \$8 each plus a \$3 delivey charge. Show the cost of 1, 2, 3, and 4 pizzas. Is there a direct variation?

| Number of Pizzas | Cost |
|------------------|------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

Explain: _____

Determine whether the linear relationship is a direct variation. If so, state the constant of proportionality.

| Time | Wages |
|------|-------|
| 1 | 12 |
| 2 | 24 |
| 3 | 26 |
| 4 | 48 |

Explain: _____

Chapter 1: Ratios and Proportional Reasoning - Lesson 9: Direct Variation

Two minutes after a diver enters the water, he has descended 52 feet. After 5 minutes, he has descended 130 feet. At what rate is the scuba diver descending?

$\frac{\text{depth}}{\text{time}}$

The distance y traveled in miles by the Chang family in x hours is represented by the equation $y=55x$. Identify the constant of proportionality. Then explain what it represents.

Explain: _____

A _____ relationship is a direct variation when the ratio of y to x is a _____, k . We say _____ varies directly with _____.

$$y = kx$$

When two _____ quantities have a _____ ratio, their relationship is called a direct variation. The constant ratio is called the _____ of variation, also known as the _____ of proportionality.

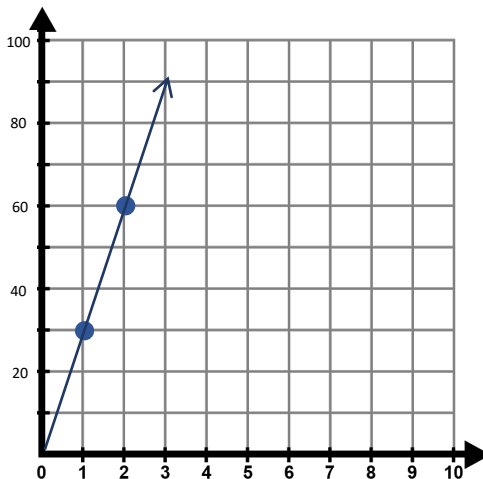
Not all situations with a _____ rate of change are proportional relationships, and not all _____ functions are direct variations.

Two pounds of cheese cost \$8.40. Show the cost of 1, 2, 3, and 4 pounds of cheese. Is there a direct variation? Explain.

| Pounds | Cost |
|--------|--------|
| 1 | |
| 2 | \$8.40 |
| 3 | |
| 4 | |

Explain: _____

The number of cakes baked varies directly with the number of hours the caterers work. What is the ratio of cakes baked to hours worked?



Chapter 2

Chapter 2: Percents - Lesson 1: Percent of Number

Find 5% of 300 by writing the percent as a fraction.

Find 25% of 180 by writing the percent as a decimal.







To find the percent of a _____ such as 60% of 2000, you can use either of the following methods.

- Write the percent as a _____ and then multiply
- Write the percent as a _____ then multiply

Percents that are greater than _____% can be written as _____ fractions, _____ numbers, or decimals greater than _____.

Find 150% of 28 by writing the percent as a decimal.

Refer to the graph. If 275 students took the survey, how many can be expected to have 3 television each in their houses?

| | | |
|----|---|-----|
| 0 |  | 2% |
| 1 |  | 9% |
| 2 |  | 17% |
| 3 |  | 23% |
| 4 |  | 20% |
| >4 |  | 25% |

Chapter 2: Percents - Lesson 1: Percent of Number

Find 40% of 70.

Find 25% of 180 by writing the percent as a decimal.

To find the percent of a _____ such as 60% of 2000, you can use either of the following methods.

- Write the percent as a _____ and then multiply
- Write the percent as a _____ then multiply

Percents that are greater than _____% can be written as _____ fractions, _____ numbers, or decimals greater than _____.

Find 120% of 75 by writing the percent as a fraction.

Mr. Sudimack earned a 4% commission on the sale of a hot tub that cost \$3,755. How much did he earn?

Chapter 2: Percents - Lesson 2: Percent and Estimation

Jodi has paid 62% of the \$500 she owes for her loan.

Estimate 122% of 50.

Sometimes an _____ answer is not needed when using _____. One way to _____ the percent of a _____ is to use a _____.

Another method of _____ the percent of a _____ is first to find 10% of the number and then multiply.

$$70\% = 7 \cdot 10\%$$

There are 789 seventh grade students at Washington Middle School. About $\frac{1}{4}\%$ of the seventh grade students have travelled overseas. What is the approximate number of seventh grade students that have traveled overseas? Explain.

Last year, 639 students attended a summer camp. Of those who attended this year, 0.5% also attended the summer camp two years in a row?

Chapter 2: Percents - Lesson 2: Percent and Estimation

Estimate 42% of 120.

Dante plans to put 80% of his paycheck into a saving account and spend the other 20%. His paycheck this week was \$295. About how much money will he put into his savings account?

Sometimes an _____ answer is not needed when using _____. One way to _____ the percent of a _____ is to use a _____.

Another method of _____ the percent of a _____ is first to find 10% of the number and then multiply.

$$70\% = 7 \cdot 10\%$$

A county receives $\frac{3}{4}\%$ of a state sales tax. About how much money would the county receive from the sale of a computer that costs \$1,020?

Of the 78 teenagers at a youth camp, 63% have birthdays in the spring. About how many teenagers have birthdays in the spring?

Chapter 2: Percents - Lesson 3: The Percent Proportion

What percent of \$15 is \$9?

$$\frac{\quad}{\quad} = \frac{n}{100}$$

What number is 40% of 120?

$$\frac{p}{\quad} = \frac{\quad}{100}$$

In a percent _____, one ratio or fraction _____ part of a quantity to the _____ quantity. The other ratio is the equivalent _____ written as a _____ with a denominator of _____.

4 out of 5 is 80%

$$\frac{\text{part}}{\text{whole}} \rightarrow \frac{\quad}{\quad} = \frac{\quad}{100}$$

18 is 25% of what number?

$$\frac{\quad}{w} = \frac{\quad}{100}$$

The average adult male Western Lowland gorilla eats about 33.5 pounds of fruit each day. How much food does the average adult male gorilla eat each day?

$$\frac{\quad}{w} = \frac{\quad}{100}$$

| Food | Percent |
|--------------------------------|---------|
| Fruit | 67% |
| Seeds, leaves, stems, and pith | 17% |
| Insects/ Insect Larvae | 16% |

Chapter 2: Percents - Lesson 3: The Percent Proportion

What percent of 25 is 20?

$$\frac{\quad}{\quad} = \frac{n}{100}$$

What number is 5% of 60?

$$\frac{p}{\quad} = \frac{\quad}{100}$$

In a percent _____, one ratio or fraction _____ part of a quantity to the _____ quantity. The other ratio is the equivalent _____ written as a _____ with a denominator of _____.

40% of what number is 26?

4 out of 5 is 80%

$$\frac{\text{part}}{\text{whole}} \rightarrow \frac{\quad}{\quad} = \frac{\quad}{100}$$

84 is 75% of what number?

$$\frac{\quad}{w} = \frac{\quad}{100}$$

$$\frac{\quad}{w} = \frac{\quad}{100}$$

Chapter 2: Percents - Lesson 4: The Percent Equation

What number is 12% of 150?

part = percent · whole

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot w$$

$$\underline{\hspace{2cm}} = w$$

21 is what percent of 40?

part = percent · whole

$$\underline{\hspace{2cm}} = p \cdot \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = p$$

part = percent · whole

You can use the percent
 to solve problems
 that involve percents.

3 is 50% of 6

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

13 is 26% of what number?

part = percent · whole

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot w$$

$$\underline{\hspace{2cm}} = w$$

A survey found that 25% of people aged 18-24 gave up their home phone and only use a cell phone. If 3,264 people only use a cell phone, how many people were surveyed?

part = percent · whole

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot w$$

$$\underline{\hspace{2cm}} = w$$

Chapter 2: Percents - Lesson 5: Percent of Change

Find the percent of change in the cost of gasoline from 1970 when it cost \$1.30 a gallon to 2010 when is cost \$2.95 a gallon.

amount of increase: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

Yusuf bought a DVD recorder for \$280. Now, it is on sale for \$220. Find the percent of change in the price. Round to the nearest whole percent if necessary.

amount of decrease: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

When you compare the amount of _____ to the _____ amount in a ratio, you are finding the percent of _____. The percent of change is based on the _____ amount.

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

The percent error is a _____ that compares the _____ of an estimate, or amount of _____, to the _____ amount.

percent of error = $\frac{\text{amount of error}}{\text{actual amount}}$

Ahmed wants to practice free-throws. He estimates the distance from the free-throw line to the hoop and marks it with chalk.

Ahmed's estimate was 13.5 feet. The actual distance should be 15 feet. Find the percent error.

amount of error: _____ - _____ = _____

percent of error = $\frac{\text{amount of error}}{\text{actual amount}}$

percent of error = _____

percent of error = _____ = _____%

Find each percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an increase or decrease.

30 inches to 24 inches

amount of change: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

increase decrease

Chapter 2: Percents - Lesson 5: Percent of Change

Find the percent of change from 10 yards to 13 yards.

amount of increase: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

The price of a radio was \$20. It is on sale for \$15. What is the percent of change in the price of a radio.

amount of decrease: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

When you compare the amount of _____ to the _____ amount in a ratio, you are finding the percent of _____. The percent of change is based on the _____ amount.

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

The percent error is a _____ that compares the _____ of an estimate, or amount of _____, to the _____ amount.

percent of error = $\frac{\text{amount of error}}{\text{actual amount}}$

Find the percent error if the estimate is \$230 and the actual amount is \$245. Round to the nearest whole percent.

amount of error: _____ - _____ = _____

percent of error = $\frac{\text{amount of error}}{\text{actual amount}}$

percent of error = _____

percent of error = _____ = _____%

Find each percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an increase or decrease.

\$126 to \$150

amount of change: _____ - _____ = _____

percent of change = $\frac{\text{amount of change}}{\text{original amount}}$

percent of change = _____

percent of change = _____ = _____%

increase decrease

Chapter 2: Percents - Lesson 6: Sales Tax, Tips, and Markups

Drew wants to buy exercise equipment that costs \$140 and the sales tax is 5.75%. What is the total cost of the equipment?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

A customer wants to tip 15% on a restaurant bill that is \$35. What will be the total bill with tip?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Sales tax is an amount of money charged on items that people buy. The total cost of an item is the price plus the sales tax.

A tip or gratuity is a amount of money in return for a service. The total price is the regular price of the service plus .

A store sells items for more than it pays for those items. The amount of is called the . The price is the amount the customer pays for an item.

Find the total cost of a spa treatment of \$42 including 6% tax and 20% tips.

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

A store pays \$56 for a GPS navigation system. The markup is 25%. Find the selling price.

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Chapter 2: Percents - Lesson 6: Sales Tax, Tips, and Markups

What is the total cost of a sweatshirt if the regular price is \$42 and the sales tax is $5\frac{1}{2}\%$?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Scott wants to tip his taxicab driver 20%. If his commute costs \$15, what is the total cost?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Sales tax is an _____ amount of money charged on items that people buy. The total cost of an item is the _____ price plus the sales tax.

A tip or gratuity is a _____ amount of money in return for a service. The total price is the regular price of the service plus _____.

A store sells items for more than it pays for those items. The amount of _____ is called the _____. The _____ price is the amount the customer pays for an item.

A haircut costs \$20. Sales tax is 4.75%. Is \$25 sufficient to cover the haircut with tax and a 15% tip?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

A store pays \$150 for a portable basketball backboard and the markup is 40%. What is the selling price?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Chapter 2: Percents - Lesson 7: Discount

A DVD normally cost \$22. This week it is on sale for 25% off the original price. What is the sale price of the DVD?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

A boogie board that has a regular price of \$69 is on sale at a 35% discount. What I the sale price with 7% tax?

Discount

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Tax

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

_____ or markdown is the
_____ by which the
_____ price of an item is
_____. The sale price is
the regular price _____
the discount.

If you _____ money from a
bank, you pay the bank
_____.

A cell phone is on sale for 30% off. If the sale price is \$239.89, what is the original price?

part = percent · whole

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot p$$

$$\underline{\hspace{2cm}} = p$$

Clothes are Us and Ratcliffe's are having sales. At Clothes Are Us, a pair of sneakers is on sale for 40% off the regular price of \$50. At Ratcliffe's, the

same brand of sneakers is discounted by 30% off of the regular price of \$40. Which store has the better sale price? Explain

Clothes Are Us

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

Ratcliffe's

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

Explain: _____

Chapter 2: Percents - Lesson 7: Discount

A shirt is regularly priced at \$42. It is on sale for 15% of of the regular price. What is the sale price of the shirt?

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

A CD that has a regular price of \$15.50 is on sale at 25% discount. What is the sale price with 6.5% tax.

Discount

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Tax

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

_____ or markdown is the
 _____ by which the
 _____ price of an item is
 _____. The sale price is
 the regular price _____
 the discount.

If you _____ money from a
 bank, you pay the bank
 _____.

A cell phone is on sale for 30% off. If the sale price is \$205.50, what is the original price?

part = percent · whole

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} \cdot p$$

$$\underline{\hspace{2cm}} = p$$

Clothes are Us and Ratcliffe's are having sales. At Clothes Are Us, a pair of sneakers is on sale for 50% off the regular price of \$50. At Ratcliffe's, the

same brand of sneakers is discounted by 30% off of the regular price of \$40. Which store has the better sale price? Explain

Clothes Are Us

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

Ratcliffe's

part = percent · whole

$$p = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}$$

$$p = \underline{\hspace{2cm}}$$

Explain: _____

Chapter 2: Percents - Lesson 8: Financial Literacy - Simple Interest

Arnold puts \$580 into a savings account. The account pays 3% simple interest. How much interest will he earn in 6 months?

$$I = prt$$

$$I = (\underline{\quad})(\underline{\quad})(\underline{\quad})$$

$$I = \underline{\hspace{2cm}}$$

Rondell's parents borrow \$6,300 from the bank for a new car. The interest rate is 6% per year. How much simple interest will they pay if they take 2 years to repay the loan?

$$I = prt$$

$$I = (\underline{\quad})(\underline{\quad})(\underline{\quad})$$

$$I = \underline{\hspace{2cm}}$$

If you have a _____ account, the bank pays you _____ for the use of your money. Use the formula $I=prt$ to find the _____ of _____ that will be earned.

p = principal (starting money)

r = annual interest rate

t = time

If you _____ from a bank, you pay the bank interest for the use of their money. You also pay _____ to a credit card company if you have an unpaid balance. Use the formula $I=prt$ to find the amount of interest owed.

Derrick's dad bought new tires for \$900 using a credit card. His card has an interest rate of 19%. If he has no other charges on his card and does not make a payment, how much money will he owe after one month?

$$I = prt$$

$$I = (\underline{\quad})(\underline{\quad})(\underline{\quad})$$

$$I = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Luis is taking out a car loan for \$5,000. He plans on paying off the car loan in 2 years. At the end of 2 years, Luis will have paid \$300 interest.

What is the simple interest rate on the car loan.

$$I = prt$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{2cm}})r(\underline{\hspace{2cm}})$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{2cm}})r$$

$$\underline{\hspace{2cm}} = r$$

Chapter 2: Percents - Lesson 8: Financial Literacy - Simple Interest

Arnold puts \$580 into a savings account. The account pays 3% simple interest. How much interest will he earn in 5 years?

$$I = prt$$

$$I = (\underline{\hspace{2cm}})(\underline{\hspace{2cm}})(\underline{\hspace{2cm}})$$

$$I = \underline{\hspace{4cm}}$$

Mrs. Hannover borrows \$1,400 at a rate of 5.5% per year. How much simple interest will she pay if it takes 8 months to repay the loan?

$$I = prt$$

$$I = (\underline{\hspace{2cm}})(\underline{\hspace{2cm}})(\underline{\hspace{2cm}})$$

$$I = \underline{\hspace{4cm}}$$

If you have a _____ account, the bank pays you _____ for the use of your money. Use the formula $I=prt$ to find the _____ of _____ that will be earned.

p = principal (starting money)

r = annual interest rate

t = time

If you _____ from a bank, you pay the bank interest for the use of their money. You also pay _____ to a credit card company if you have an unpaid balance. Use the formula $I=prt$ to find the amount of interest owed.

An office manager charged \$425 worth of office supplies on a credit card. The credit card has an interest rate of 9.9%. How much money will he owe at the end of one month if he makes no other charges on the card and does not make a payment

$$I = prt$$

$$I = (\underline{\hspace{2cm}})(\underline{\hspace{2cm}})(\underline{\hspace{2cm}})$$

$$I = \underline{\hspace{4cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Maggie is taking out a student loan for \$2,600. She plans on paying off the loan in 3 years. At the end of 3 years, Maggie will have paid \$390 in interest. What is the simple interest rate on the student loan?

$$I = prt$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{2cm}})r(\underline{\hspace{2cm}})$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{2cm}})r$$

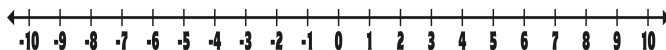
$$\underline{\hspace{2cm}} = r$$

Chapter 3

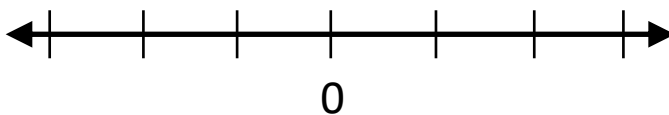
Chapter 3: Integers - Lesson 1: Integers and Absolute Value

Write an integer for the situation: an average temperature of 5 degrees below normal.

Graph the set of integers $\{4, -6, 0\}$



Integers can be graphed on a _____ line. To graph a _____ on the number line, draw a _____ on the line at its _____.



Evaluate the following expression.

$$|-5| - |2|$$

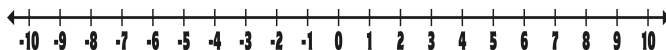
The _____ value of a number is the distance between the _____ and _____ on a number line

Nick climbs 30 feet up a rock wall and then climbs 22 feet down to a landing area. The number of feet Nick climbs can be representing using the expression $|30| + |-22|$. How many feet does Nick climb?

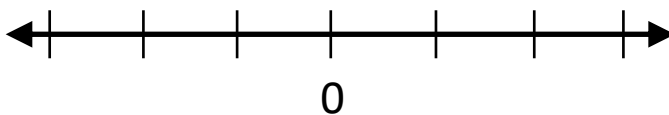
Chapter 3: Integers - Lesson 1: Integers and Absolute Value

Write an integer for the situation: an average rainfall of 5 inches above normal.

Graph the set of integers $\{-2, 8, -7\}$



Integers can be graphed on a _____ line. To graph a _____ on the number line, draw a _____ on the line at its _____.



Evaluate the following expression.

$$2 + |-3|$$

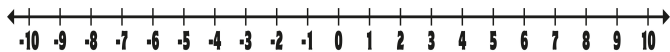
Evaluate the following expression.

$$|-6| - 5$$

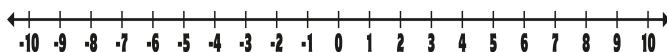
The _____ value of a number is the distance between the _____ and _____ on a number line

Chapter 3: Integers - Lesson 2: Add Integers

Find $(-3) + (-2)$.



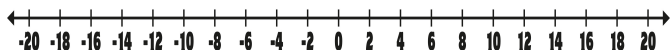
Find $5 + (-3)$.



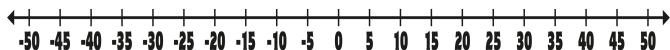
To add integers with the _____ sign, _____ their _____ values. The sum is positive if _____ integers are positive, and the sum is negative if _____ integers are negative.

To add integers with _____ signs, _____ their _____ value. The sum is positive if the positive integer's absolute value is _____, and the sum is negative if the negative integer's absolute value is _____.

Find $2 + (-15) + (-2)$.

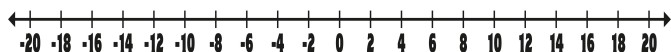


A roller coaster starts at point A. It goes up 20 feet, down 32 feet, and then up 16 feet to point B. Write an addition sentence to find the height at point B in relation to point A. Then find the sum and explain its meaning.

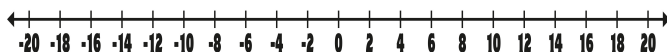


Chapter 3: Integers - Lesson 2: Add Integers

Find $-10 + (-4)$.



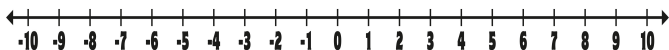
Find $-15 + 19$.



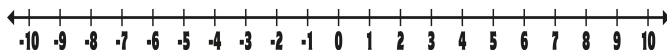
To add integers with the _____ sign, _____ their _____ values. The sum is positive if _____ integers are positive, and the sum is negative if _____ integers are negative.

To add integers with _____ signs, _____ their _____ value. The sum is positive if the positive integer's absolute value is _____, and the sum is negative if the negative integer's absolute value is _____.

Find $7 + (-7)$.



The temperature is -3° . An hour later, it drops 6° and 2 hours later, it rises 4° . Write an addition expression to describe this situation. Then find the sum and explain its meaning.



Chapter 3: Integers - Lesson 3: Subtract Integers

Find $8 - 13$.

Find $-10 - (-7)$.

To _____ an integer
_____ it's additive
_____.

Evaluate $x - y$ if
 $x = -6$ and $y = -5$.

The temperatures on the Moon vary from -173°C to 127°C . Find the difference between the maximum and minimum temperatures.

Chapter 3: Integers - Lesson 3: Subtract Integers

Find $-10 - 7$.

Find $4 - (-12)$.

To _____ an integer
_____ it's additive
_____.

Evaluate $m - n$ if
 $m = -15$ and $n = 8$.

Brenda had a balance of $-\$52$ in her account. The bank charged her a fee of $\$10$ for having a negative balance. What is her new balance?

Chapter 3: Integers - Lesson 4: Multiply Integers

Find $3(-5)$.

Find $-3(-4)(-2)$.

The product of _____ integers
with different signs is

_____.

The product of _____ integers
with the same sign is

_____.

Find $(-4)^2$.

A submersible is diving from the surface of the water at a rate of 90 feet per minute. What is the depth of the submersible after 7 minutes?

Chapter 3: Integers - Lesson 4: Multiply Integers

Find $-7(4)$.

Find $-7(-5)(-3)$.

The product of _____ integers
with different signs is

_____.

The product of _____ integers
with the same sign is

_____.

Find $-12(-4)$.

Mr. Simon's bank automatically deducts a \$4 monthly maintenance fee from his savings account. Write a multiplication expression to represent the maintenance fees for one year. Then find the product and explain its meaning.

Explanation: _____

Chapter 3: Integers - Lesson 5: Divide Integers

Find $80 \div (-10)$.

Find $-14 \div (-7)$.

The quotient of _____ integers
with different signs is

_____.

The quotient of _____ integers
with the same sign is

_____.

Find $\frac{-28}{-7}$.

One year, the estimated Australian koala population was 1,000,000. After 10 years, there were about 100,000 koalas. Find the average change in the koala population per year. Then explain its meaning.

Chapter 3: Integers - Lesson 5: Divide Integers

Find $\frac{-55}{11}$.

Find $20 \div (-4)$.

The quotient of _____ integers
with different signs is

_____.

The quotient of _____ integers
with the same sign is

_____.

Evaluate $-16 \div x$ if
 $x = -4$

The average
temperature in
January for North
Pole, Alaska, is
 -24°C . Use the
expression $\frac{9C + 160}{5}$

to find this
temperature in
degrees Fahrenheit. Found to the nearest
degree. Then explain its meaning.

Chapter 4

Chapter 4: Rational Numbers - Lesson 1: Terminating and Repeating Decimals

Write each fraction or mixed number as a decimal.

$$\frac{7}{20}$$

Write each fraction or mixed number as a decimal.

$$5\frac{3}{4}$$

Any _____ can be expressed as a _____ by dividing the numerator by the denominator.

The decimal form of a fraction is called a _____ decimal. Repeating decimals can be represented using _____ notation. In bar notation a bar is drawn only _____ the digit that repeat.

Write the fractions as decimals.

$$-\frac{1}{40}$$

$$\frac{7}{9}$$

Find the fraction of the fish in the aquarium that are goldfish. Write in simplest form.

| Fish | Amount |
|-----------|--------|
| Guppy | 0.25 |
| Angelfish | 0.4 |
| Goldfish | 0.15 |
| Molly | 0.2 |

Chapter 4: Rational Numbers - Lesson 1: Terminating and Repeating Decimals

Write each fraction or mixed number as a decimal.

$$\frac{3}{10}$$

Write each fraction or mixed number as a decimal.

$$-6\frac{1}{2}$$

Any _____ can be expressed as a _____ by dividing the numerator by the denominator.

The decimal form of a fraction is called a _____ decimal. Repeating decimals can be represented using _____ notation. In bar notation a bar is drawn only _____ the digit that repeat.

Write the fractions as decimals.

$$\frac{3}{8}$$

$$-\frac{3}{11}$$

Determine the fraction of the aquarium made up by each fish. Write the answer in simplest form.

guppy = _____

angelfish = _____

molly = _____

| Fish | Amount |
|-----------|--------|
| Guppy | 0.25 |
| Angelfish | 0.4 |
| Goldfish | 0.15 |
| Molly | 0.2 |

Chapter 4: Rational Numbers - Lesson 2: Compare and Order Rational Numbers

Fill in the \bigcirc with $<$, $>$, or $=$ to make the sentence true.

$$-1\frac{5}{6} \bigcirc -1\frac{1}{6}$$

In Mr. Huang's class, 20% of students own roller shoes. In Mrs. Trevino's class 5 out of 29 students own roller shoes. In which class does a greater fraction of student own roller shoes?

A rational number is a _____ that can be expressed as a _____ of _____ integer written as a fraction, in which the denominator is not _____.

A _____ denominator is a common _____ of the denominators of _____ or more fractions. You can use the Least Common Denominator (_____) to _____ fractions. You can also use a _____.

Order the set $\{3.44, \pi, 3.14, 3.\bar{4}\}$ from least to greatest.

Nolan is the quarterback on the football team. He completed 67% of his passes in the first game. He completed $0.64, \frac{3}{5}$, and 69% of his passes in the next three game. List Nolan's completed passing numbers from least to greatest.

Chapter 4: Rational Numbers - Lesson 2: Compare and Order Rational Numbers

Fill in the \bigcirc with $<$, $>$, or $=$ to make the sentence true.

$$\frac{7}{12} \bigcirc \frac{8}{18}$$

Fill in the \bigcirc with $<$, $>$, or $=$ to make the sentence true.

$$\frac{1}{5} \bigcirc \frac{7}{50}$$

A rational number is a _____ that can be expressed as a _____ of _____ integer written as a fraction, in which the denominator is not _____.

A _____ denominator is a common _____ of the denominators of _____ or more fractions. You can use the Least Common Denominator (_____) to _____ fractions. You can also use a _____.

In a second period class, 37.5% of students like to bowl. In a fifth period class, 12 out of 29 students like to bowl. In which class does a greater fraction of the students like to bowl?

Order the set $\{23\%, 0.21, \frac{1}{4}, \frac{1}{5}\}$ from least to greatest.

Chapter 4: Rational Numbers - Lesson 3: Add and Subtract Like Fractions

Add. Write in simplest form.

$$\frac{5}{9} + \frac{2}{9} =$$

$$-\frac{3}{5} + -\left(\frac{1}{5}\right) =$$

Sofia ate $\frac{5}{8}$ of a cheese pizza. Jack ate $\frac{2}{8}$ of a cheese pizza and $\frac{6}{8}$ of a pepperoni pizza. How much pizza did Sofia and Jack eat together?

To add or subtract _____ fractions, add or subtract the numerators and write the result over the _____.

$$\frac{5}{10} + \frac{2}{10} = \frac{5+2}{10}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\frac{11}{12} - \frac{4}{12} = \frac{11-4}{12}$$

$$\frac{a}{c} - \frac{b}{c} = \frac{a-b}{c}$$

Find

$$-\frac{5}{8} - \frac{3}{8} =$$

$$\frac{5}{8} - \frac{7}{8} =$$

About $\frac{6}{100}$ of the population of the United States lives in Florida. Another $\frac{4}{100}$ lives in Ohio. About what fraction more of the U.S. population lives in Florida than in Ohio?

Chapter 4: Rational Numbers - Lesson 3: Add and Subtract Like Fractions

Add. Write in simplest form.

$$\frac{1}{3} + \frac{2}{3} =$$

$$-\frac{2}{5} + -\left(\frac{2}{5}\right) =$$

Eduardo used fabric to make three $\frac{1}{4}$ costumes. He used $\frac{2}{4}$ yard for the first, $\frac{3}{4}$ yard for the second, and $\frac{3}{4}$ yard for the third costume. How much fabric did Eduardo use altogether?

To add or subtract _____ fractions, add or subtract the numerators and write the result over the _____.

$$\frac{5}{10} + \frac{2}{10} = \frac{5+2}{10}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\frac{11}{12} - \frac{4}{12} = \frac{11-4}{12}$$

$$\frac{a}{c} - \frac{b}{c} = \frac{a-b}{c}$$

Find

$$\frac{5}{9} - \frac{2}{9} =$$

$$-\frac{5}{9} - \frac{2}{9} =$$

Of the 50 states in the United States, 14 have an Atlantic Ocean coastline and 5 have a Pacific Ocean coastline. What fraction of the U.S. states have either an Atlantic Ocean or Pacific Ocean coastline?

Chapter 4: Rational Numbers - Lesson 4: Add and Subtract Unlike Fractions

Find

$$\frac{1}{2} + \frac{1}{4} =$$

Find

$$-\left(\frac{3}{4} + \frac{5}{9}\right) + \frac{7}{4} =$$

To _____ or _____
fraction with _____
denominators rename the fractions
using the least _____
denominator (_____), add or
subtract as with like fractions, and if
needed simplify the sum or difference.

Find

$$-\frac{2}{3} - \frac{1}{2} =$$

Use the table to
find the fraction of
the total population
that has type A or
type B blood.

| ABO Type | O | A | B | AB |
|----------|-----------------|-----------------|----------------|----------------|
| Fraction | $\frac{11}{25}$ | $\frac{21}{50}$ | $\frac{1}{10}$ | $\frac{1}{25}$ |

Chapter 4: Rational Numbers - Lesson 4: Add and Subtract Unlike Fractions

Find

$$\frac{1}{6} + \frac{2}{3} =$$

Find

$$\frac{2}{5} + \left(\frac{4}{7} + \frac{3}{5} \right) =$$

To _____ or _____
fraction with _____
denominators rename the fractions
using the least _____
denominator (_____), add or
subtract as with like fractions, and if
needed simplify the sum or difference.

Find

$$\frac{5}{8} - \frac{1}{4} =$$

Use the table to
find the fraction of
the total population
that has type O or
type AB blood.

| ABO Type | O | A | B | AB |
|----------|-----------------|-----------------|----------------|----------------|
| Fraction | $\frac{11}{25}$ | $\frac{21}{50}$ | $\frac{1}{10}$ | $\frac{1}{25}$ |

Chapter 4: Rational Numbers - Lesson 5: Add and Subtract Mixed Numbers

Find $7\frac{4}{9} + 10\frac{2}{9}$. Write in simplest form.

Find $8\frac{5}{6} - 2\frac{1}{3}$. Write in simplest form.

To add or subtract _____ numbers, first add or subtract the _____. If necessary, rename them using the _____. Then add or subtract the _____ numbers and _____ if necessary.

Sometimes when you subtract mixed numbers the fraction in the first mixed number is _____ than the fraction in the second mixed number. In this case, _____ one or both fractions in order to subtract.

Find
 $2\frac{1}{3} - 1\frac{2}{3}$

An urban planner is designing a skateboard park. The length of the skateboard park is $120\frac{1}{2}$ feet. The length of the parking lot is $40\frac{1}{3}$ feet. What will be the length of the park and the parking lot combined?

Chapter 4: Rational Numbers - Lesson 5: Add and Subtract Mixed Numbers

Find $6\frac{1}{8} + 2\frac{5}{8}$. Write in simplest form.

Find $5\frac{4}{5} - 1\frac{3}{10}$. Write in simplest form.

To add or subtract _____ numbers, first add or subtract the _____. If necessary, rename them using the _____. Then add or subtract the _____ numbers and _____ if necessary.

Sometimes when you subtract mixed numbers the fraction in the first mixed number is _____ than the fraction in the second mixed number. In this case, _____ one or both fractions in order to subtract.

Subtract. Write in simplest form.

$$7 - 1\frac{1}{2}$$

A dog's bowl holds $1\frac{1}{2}$ cups of dog food. The dog ate $\frac{2}{3}$ cups of dog food. How much dog food is left in the bowl?

Chapter 4: Rational Numbers - Lesson 6: Multiply Fractions

Multiply. Write in simplest form.

$$\frac{1}{2} \times \frac{1}{3}$$

Multiply. Write in simplest form.

$$2 \times \left(-\frac{3}{4}\right)$$

When multiplying two _____, write the product in _____ form. The numerator and denominator of either fraction may have common _____. If this is the case, you can _____ before _____.

Find the answer, and write in simplest form.

$$\frac{1}{2} \times 4\frac{2}{5}$$

When multiplying by a _____ number, you can rename the mixed number as an _____ fraction. You can also multiply mixed numbers using the _____ Property and _____ math.

Humans sleep about $\frac{1}{3}$ of each day. Let each year equal $365\frac{1}{4}$ days. Determine the number of days in a year the average human sleeps.

Chapter 4: Rational Numbers - Lesson 6: Multiply Fractions

Multiply. Write in simplest form.

$$\frac{3}{5} \times \frac{1}{2}$$

Multiply. Write in simplest form.

$$\frac{2}{3} \times (-4)$$

When multiplying two _____, write the product in _____ form. The numerator and denominator of either fraction may have common _____. If this is the case, you can _____ before _____.

Find the answer, and write in simplest form.

$$-1\frac{7}{8} \times (-2\frac{2}{5})$$

When multiplying by a _____ number, you can rename the mixed number as an _____ fraction. You can also multiply mixed numbers using the _____ Property and _____ math.

The pygmy shrew eats $1\frac{1}{4}$ times its body weight each day. If a pygmy shrew weighs $\frac{1}{6}$ of an ounce determine the number of ounces it eats a day.

Chapter 4: Rational Numbers - Lesson 7: Convert Between Systems

Convert 17.22 inches to centimeters. Round to the nearest hundredth if necessary.

$$\underline{\hspace{2cm}} \text{ in} \cdot \frac{\underline{\hspace{2cm}} \text{ lb}}{1 \text{ in}}$$

Convert 5 kilometers to miles. Round to the nearest hundredth if necessary.

$$5 \text{ km} \cdot \frac{1 \text{ mi}}{\underline{\hspace{2cm}} \text{ km}}$$

You can _____ by fractions to convert between _____ and _____ units.

| Customary | Metric |
|----------------|-------------------------|
| 1 inch (in) | 2.54 centimeters (cm) |
| 1 foot (ft) | 0.30 meter (m) |
| 1 yard (yd) | 0.91 meter (m) |
| 1 mile (mi) | 1.61 kilometers (km) |
| 1 pound (lb) | 453.6 grams (g) |
| 1 pound (lb) | 0.4536 kilogram (kg) |
| 1 ton (T) | 907.2 kilograms (kg) |
| 1 cup (c) | 236.59 milliliters (mL) |
| 1 pint (pt) | 473.18 milliliters (mL) |
| 1 quart (qt) | 946.35 milliliters (mL) |
| 1 gallon (gal) | 3.79 liters (L) |

Convert 4.25 kilograms to pounds. Round to the nearest hundredth if necessary.

$$\underline{\hspace{2cm}} \text{ kg} \cdot \frac{1 \text{ lb}}{\underline{\hspace{2cm}} \text{ kg}}$$

An Olympic-size swimming pool is 50 meters long. About how many feet long is the pool?

$$\underline{\hspace{2cm}} \text{ m} \cdot \frac{1 \text{ ft}}{\underline{\hspace{2cm}} \text{ m}}$$

Chapter 4: Rational Numbers - Lesson 7: Convert Between Systems

Complete. Round to the nearest hundredth if necessary.

$$\underline{\quad} \text{ yd} \cdot \frac{\underline{\quad} \text{ m}}{1 \text{ yd}}$$

Complete. Round to the nearest hundredth if necessary.

$$1.6 \text{ cm} \cdot \frac{1 \text{ in}}{\underline{\quad} \text{ cm}}$$

You can _____ by fractions to convert between _____ and _____ units.

| Customary | Metric |
|----------------|-------------------------|
| 1 inch (in) | 2.54 centimeters (cm) |
| 1 foot (ft) | 0.30 meter (m) |
| 1 yard (yd) | 0.91 meter (m) |
| 1 mile (mi) | 1.61 kilometers (km) |
| 1 pound (lb) | 453.6 grams (g) |
| 1 pound (lb) | 0.4536 kilogram (kg) |
| 1 ton (T) | 907.2 kilograms (kg) |
| 1 cup (c) | 236.59 milliliters (mL) |
| 1 pint (pt) | 473.18 milliliters (mL) |
| 1 quart (qt) | 946.35 milliliters (mL) |
| 1 gallon (gal) | 3.79 liters (L) |

Complete. Round to the nearest hundredth if necessary.

$$7.44 \text{ c} \cdot \frac{\underline{\quad} \text{ mL}}{1 \text{ c}}$$

Ms. Meyers was collecting 2L soda bottles for a class project. About how many gallons could each bottle hold?

$$\underline{\quad} \text{ L} \cdot \frac{1 \text{ gal}}{\underline{\quad} \text{ L}}$$

Chapter 4: Rational Numbers - Lesson 8: Divide Fractions

Find $\frac{1}{3} \div 5$.

Find $\frac{3}{4} \div (-\frac{1}{2})$.
Write in simplest form.

To divide by a _____,
multiply by its multiplicative
_____, or _____.

$$\frac{7}{8} \div \frac{3}{4} = \frac{7}{8} \cdot \frac{4}{3}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$$

Find the answer,
and write in
simplest form.

$$\frac{2}{3} \div 3\frac{1}{3}$$

To divide by a _____
number, first rename the mixed number
as a fraction greater than _____. Then
multiply the _____ fraction
by the reciprocal, or multiplicative
inverse, of the _____ fraction.

The side pieces of a
butterfly house are
 $8\frac{1}{4}$ inches long.
How many side
piece can be cut
from a board
measuring $49\frac{1}{2}$
inches long?

Chapter 4: Rational Numbers - Lesson 8: Divide Fractions

Find $-\frac{4}{5} \div \frac{8}{9}$.

Find $-\frac{5}{6} \div \left(-\frac{2}{3}\right)$.
Write in simplest form.

To divide by a _____,
multiply by its multiplicative
_____, or _____.

$$\frac{7}{8} \div \frac{3}{4} = \frac{7}{8} \cdot \frac{4}{3}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$$

To divide by a _____
number, first rename the mixed number
as a fraction greater than _____. Then
multiply the _____ fraction
by the reciprocal, or multiplicative
inverse, of the _____ fraction.

Find the answer,
and write in
simplest form.

$$-\frac{3}{4} \div 1\frac{1}{2}$$

A choker style
necklace is about
 $16\frac{3}{4}$ inches long.
How many necklace
cords can be cut
from a wire
measuring $105\frac{1}{2}$
inches long?

Chapter 5

Chapter 5: Expressions - Lesson 1: Algebraic Expressions

Evaluate $8w - 2v$ if $w = 5$ and $v = 3$.

Athletic trainers use the formula $\frac{3(220 - a)}{5}$, where a is a person's age, to find their minimum training heart rate. Find Latrina's minimum training heart rate if she is 15 years old.

A variable is a _____ that represents an unknown quantity. An algebraic expression, such as $n + 2$, is an expression that contains _____, _____, and at least one _____.

In algebra, the _____ sign is often omitted. Ex: $6d$ $9st$ mn a^3

The numerical factor of a multiplication expression that contains a variable is called a _____. So ____ is the coefficient of $6d$.

To translate a _____ phrase into an _____ expression, the first step is to define a variable but choosing a variable to represent an unknown quantity.

Marisa wants to buy a DVD player that costs \$150. She already saved \$25 and plans to save an additional \$10 each week. Write an expression that represents the total amount of money Marisa has saved after any number of weeks.

Words: _____

Variable: _____

Expression: _____

Using your expression from the previous problem, will Marisa have saved enough money to buy the \$150 DVD player in 11 weeks?

Chapter 5: Expressions - Lesson 1: Algebraic Expressions

Evaluate $2(n + 3)$ if $n = -4$.

To find the area of a triangle, use the formula $\frac{bh}{2}$, where b is the base and h is the height. What is the area in square inches of a triangle with a height of 6 inches and a base of 8 inches.

A variable is a _____ that represents an unknown quantity. An algebraic expression, such as $n + 2$, is an expression that contains _____, _____, and at least one _____.

In algebra, the _____ sign is often omitted. Ex: $6d$ $9st$ mn a^3

The numerical factor of a multiplication expression that contains a variable is called a _____. So ____ is the coefficient of $6d$.

To translate a _____ phrase into an _____ expression, the first step is to define a variable but choosing a variable to represent an unknown quantity.

An MP3 player costs \$70 and song downloads cost \$0.85 each. Write an expression that represents the cost of the MP3 player and x number of downloaded songs.

Using your expression from the previous problem, find the total cost if 20 songs are downloaded.

Words: _____

Variable: _____

Expression: _____

Chapter 5: Expressions - Lesson 2: Sequences

Describe the relationship between the terms in the arithmetic sequence 0.4, 0.6, 0.8, 1.0, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

Describe the relationship between the terms in the arithmetic sequence 0, 13, 26, 39, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

A sequence is an _____ list of numbers. Each number in a sequence is called a _____. In an arithmetic sequence, each term is found by adding the _____ number to the previous term.

In an arithmetic sequence, the terms can be whole _____, _____, or _____.

You can write an _____ expression to represent the relationship between any term in a sequence and its _____ in the sequence.

Consider the sequence 2, 4, 6, 8, ... In this case if n represents the position in the sequence, the value of the term is _____.

Describe the relationship between the terms in the arithmetic sequence 8, 13, 18, 23, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

The greeting cards that Meredith makes are sold in boxes at a gift store. The first week, the store sold 5 boxes. Each week the store sells five more boxes. The pattern continues.

What algebraic expression can be used to find the total number of boxes sold at the end of the 100th week? What is the total?

| Position | Operation | Value of Term |
|----------|-------------|---------------|
| 1 | $1 \cdot 5$ | 5 |
| 2 | $2 \cdot 5$ | |
| 3 | | |
| n | | |
| 100 | | |

Chapter 5: Expressions - Lesson 2: Sequences

Describe the relationship between the terms in the arithmetic sequence 4, 7, 10, 13, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

Describe the relationship between the terms in the arithmetic sequence 1.0, 1.3, 1.6, 1.9, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

A sequence is an _____ list of numbers. Each number in a sequence is called a _____. In an arithmetic sequence, each term is found by adding the _____ number to the previous term.

In an arithmetic sequence, the terms can be whole _____, _____, or _____.

You can write an _____ expression to represent the relationship between any term in a sequence and its _____ in the sequence.

Consider the sequence 2, 4, 6, 8, ... In this case if n represents the position in the sequence, the value of the term is _____.

Describe the relationship between the terms in the arithmetic sequence 2.5, 3.0, 3.5, 4.0, Then write the next three terms in the sequence.

Describe the relationship: _____

Next three terms: _____, _____, _____

If the pattern continues, what algebraic expression can be used to find the number of circles used in any figure? How many circles will be in the 50th figure?

Figure 1: ○○○

Figure 2: ○○○ ○○○

Figure 3: ○○○ ○○○ ○○○

| Position | Operation | Value of Term |
|----------|-------------|---------------|
| 1 | $1 \cdot 3$ | 3 |
| 2 | $2 \cdot 3$ | |
| 3 | | |
| n | | |
| 50 | | |

Chapter 5: Expressions - Lesson 3: Properties of Operations

Name the property shown by the following statement.

$$2 \cdot (5 \cdot n) = (2 \cdot 5) \cdot n$$

State whether the following conjecture is true or false. If false provide a counterexample.

Division of whole numbers is commutative.

true

false

Commutative Property: The order in which numbers are added or multiplied does not change the sum.

$$a + b = _ + _ \qquad a \cdot b = _ \cdot _$$

Associative Property: The way in which numbers are grouped when they are added or multiplied does not change the sum or product.

$$a + (b + c) = (_ + _) + _ \qquad a \cdot (b \cdot c) = (_ \cdot _) \cdot _$$

Additive Identity: When 0 is added to any number, the sum is the number.

$$a + 0 = _ \qquad 0 + a = _$$

Multiplicative Identity: When any number is multiplied by 1, the product is the number.

$$a \cdot 1 = _ \qquad 1 \cdot a = _$$

Multiplicative Property of Zero: When any number is multiplied by 0, the product is 0.

$$a \cdot 0 = _ \qquad 0 \cdot a = _$$

Alana wants to buy a sweater that costs \$38, sunglasses that costs \$14, a pair of jeans that costs \$22, and a T-shirt that costs \$16. Use mental math to find the total cost before tax.

Simplify the expression. Justify each step using one of the listed properties or identities.

$$(7 + g) + 5$$

Chapter 5: Expressions - Lesson 3: Properties of Operations

Name the property shown by the following statement.

$$42 + x + y = 42 + y + x$$

State whether the following conjecture is true or false. If false provide a counterexample.

The difference of two different whole numbers is always less than both of the two numbers.

true

false

Commutative Property: The order in which numbers are added or multiplied does not change the sum.

$$a + b = _ + _ \qquad a \cdot b = _ \cdot _$$

Associative Property: The way in which numbers are grouped when they are added or multiplied does not change the sum or product.

$$a + (b + c) = (_ + _) + _ \qquad a \cdot (b \cdot c) = (_ \cdot _) \cdot _$$

Additive Identity: When 0 is added to any number, the sum is the number.

$$a + 0 = _ \qquad 0 + a = _$$

Multiplicative Identity: When any number is multiplied by 1, the product is the number.

$$a \cdot 1 = _ \qquad 1 \cdot a = _$$

Multiplicative Property of Zero: When any number is multiplied by 0, the product is 0.

$$a \cdot 0 = _ \qquad 0 \cdot a = _$$

Lance made four phone calls from his cell phone today. The calls lasted 4.7, 9.4, 2.3, and 10.6 minutes. Use mental math to find the total amount of time he spent on the phone.

Simplify the expression. Justify each step using one of the listed properties or identities.

$$(m \cdot 9) \cdot m$$

Chapter 5: Expressions - Lesson 4: The Distributive Property

Use the Distributive Property to evaluate $8(-9 + 4)$.

Use the Distributive Property to rewrite each expression.

$$(m + 3n)8$$

The _____ Property states that to _____ a sum or difference by a number, multiply each term _____ the parentheses by the number _____ the parentheses.

$$a(b + c) = ab + ac$$
$$4(6 + 2) = 4 \cdot 6 + 4 \cdot 2$$

$$a(b - c) = ab - ac$$
$$3(7 - 5) = 3 \cdot 7 + 3 \cdot 5$$

The expressions $2(x + 2)$ and $2x + 4$ are _____ expressions.

Use the Distributive Property to rewrite each expression.

$$\frac{1}{3}(x - 6)$$

Mr. Ito needs to buy batting helmets for the baseball team. The helmets he plans to buy are \$19.95 each. Find the total cost if Mr. Ito needs to buy 9 batting helmets for the team.

Chapter 5: Expressions - Lesson 4: The Distributive Property

Use the Distributive Property to evaluate $7(10 - 5)$.

Use the Distributive Property to rewrite each expression.

$$5(-3x + 7y)$$

The _____ Property states that to _____ a sum or difference by a number, multiply each term _____ the parentheses by the number _____ the parentheses.

$$a(b + c) = ab + ac$$
$$4(6 + 2) = 4 \cdot 6 + 4 \cdot 2$$

$$a(b - c) = ab - ac$$
$$3(7 - 5) = 3 \cdot 7 + 3 \cdot 5$$

Use the Distributive Property to rewrite each expression.

$$-2(x - 8)$$

The expressions $2(x + 2)$ and $2x + 4$ are _____ expressions.

A sports club rents dirt bikes for \$37.50 each. Find the total cost for the club to rent 20 bikes. Justify your answer by using the Distributive Property.

Chapter 5: Expressions - Lesson 5: Simplify Algebraic Expressions

Identify the terms, like terms, coefficients, and constants in the expression $6n - 7n - 4 + n$.

Write $7x - 2 - 7x + 6$ in simplest form.

When _____ or _____ signs separate an algebraic expression into parts, each part is called a _____. Recall that the numerical factor of a term that contains a variable is called the _____ of the _____.

Like terms contain the _____ variables to the _____ powers. For example, $3x^2$ and $-7x^2$ are like terms. So are $8xy^2$ and $12xy^2$. But $10x^2z$ and $22xz^2$ are not like terms. A term without a variable is called a _____. Constant terms are also _____ terms.

An algebraic expression is in simplest form if it has no like _____ and no _____.

The cost of a jacket j after a 5% markup can be represent by the expression $j + 0.05j$. Simplify the expression. Then determine the total cost of the jacket after the markup, if the original price is \$35.

At a concert, you buy some T-shirts for \$12.00 each and the same number of CDs for \$7.50 each. Write an expression in simplest form that represents the total amount spent.

Chapter 5: Expressions - Lesson 5: Simplify Algebraic Expressions

Identify the terms, like terms, coefficients, and constants in the expression $9y - 4 - 11y + 7$.

Write $6 - 3n + 3n$ in simplest form.

When _____ or _____ signs separate an algebraic expression into parts, each part is called a _____. Recall that the numerical factor of a term that contains a variable is called the _____ of the _____.

Like terms contain the _____ variables to the _____ powers. For example, $3x^2$ and $-7x^2$ are like terms. So are $8xy^2$ and $12xy^2$. But $10x^2z$ and $22xz^2$ are not like terms. A term without a variable is called a _____. Constant terms are also _____ terms.

An algebraic expression is in simplest form if it has no like _____ and no _____.

Write $2g - 3 + 11 - 8g$ in simplest form.

The cost of a jacket j after a 8% markup can be represent by the expression $j + 0.08j$. Simplify the expression. Then determine the total cost of the jacket after the markup, if the original price is \$35.

Chapter 5: Expressions - Lesson 6: Add Linear Expressions

Add.

$$(2x + 3) + (x + 4)$$

Add.

$$(2x - 1) + (x - 5)$$

A _____ expression is an algebraic expression in which the variable is raised to the _____ power.

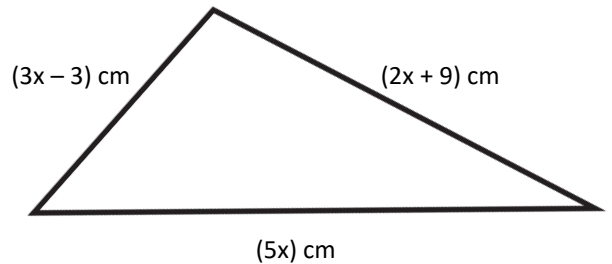
| Linear Expression | Nonlinear Expressions |
|-------------------|-----------------------|
| $5x$ | $5x^2$ |
| $3x + 2$ | $3x^3 + 2$ |
| $x - 7$ | $x^4 - 7$ |

You can _____ linear expressions with or without _____. Sometimes you will need to use _____ pairs.

Find the answer, using models if needed.

$$(2x - 3) + (-x + 4)$$

Write a linear expression in simplest form to represent the perimeter of the triangle. Find the perimeter if the value of x is 5 centimeters.



Chapter 5: Expressions - Lesson 6: Add Linear Expressions

Add.

$$(3x - 5) + (2x - 3)$$

Add.

$$(2x - 4) + (3x - 7)$$

A _____ expression is an algebraic expression in which the variable is raised to the _____ power.

| Linear Expression | Nonlinear Expressions |
|-------------------|-----------------------|
| $5x$ | $5x^2$ |
| $3x + 2$ | $3x^3 + 2$ |
| $x - 7$ | $x^4 - 7$ |

Add. Use models if needed.

$$(x - 1) + (2x + 3)$$

Add. Use models if needed.

$$(x - 4) + (-2x + 1)$$

You can _____ linear expressions with or without _____. Sometimes you will need to use _____ pairs.

Chapter 5: Expressions - Lesson 7: Subtract Linear Expressions

Subtract. Use models if needed.

$$(2x - 3) - (x - 2)$$

Find $(-2x - 4) - (2x)$. Use models if needed.

When _____ linear expressions, subtract like terms. Use _____ pairs if needed.

When subtracting integers, add the _____, or the _____.

The same process is used when subtracting linear expressions.

Find
 $(-4x - 7) - (-5x - 2)$.

A hat store tracks the sales of college and professional team hats for m months. The number of college hats sold is represented by $(6m + 3)$. The

number of professional hats sold is represented by $(5m - 2)$. Write an expression to show how many more college hats were sold than professional hats. Then evaluate the expression if m equals 10.

Chapter 5: Expressions - Lesson 7: Subtract Linear Expressions

Subtract. Use models if needed.

$$(6x + 3) - (2x + 2)$$

Find $(3x - 2) - 5x - 4$. Use models if needed.

When _____ linear expressions, subtract like terms. Use _____ pairs if needed.

When subtracting integers, add the _____, or the _____.

The same process is used when subtracting linear expressions.

Find
 $(6x + 5) - (3x + 1)$.

Find
 $(4x - 3) - (2x + 7)$.

Chapter 5: Expressions - Lesson 8: Factor Linear Expressions

Find the GCF of each pair of monomials.

$$4x = _ \cdot _ \cdot _$$

$$12x = _ \cdot _ \cdot _ \cdot _$$

The GCF is _____

Find the GCF of each pair of monomials.

$$18a = _ \cdot _ \cdot _ \cdot _$$

$$20ab = _ \cdot _ \cdot _ \cdot _ \cdot _$$

The GCF is _____

A monomial is a number, a variable, or a _____ of a number and one or more variables.

| Monomials | Not Monomials |
|------------|------------------|
| 25, x, 40x | x + 4, 40x + 120 |

To factor a number means to write it as a _____ of its _____. A monomial can be factored using the same method you would use to factor a number.

The greatest common factor (____) of two monomials is the greatest monomial that is a factor of _____.

You can use the Distributive Property and the work backward strategy to express a linear expression as a _____ of its factors.

Factor $3x + 9$.

$$3x = _ \cdot _$$

$$9 = _ \cdot _$$

The GCF is _____

A garden has a total area of $(15x + 18)$ square feet. Find possible dimensions of the garden.

$$15x = _ \cdot _ \cdot _$$

$$18 = _ \cdot _ \cdot _$$

The GCF is _____

Chapter 5: Expressions - Lesson 8: Factor Linear Expressions

Find the GCF of each pair of monomials.

$$12 = _ \cdot _ \cdot _$$

$$28c = _ \cdot _ \cdot _ \cdot _$$

The GCF is _____

Find the GCF of each pair of monomials.

$$25x = _ \cdot _ \cdot _$$

$$15xy = _ \cdot _ \cdot _ \cdot _$$

The GCF is _____

A monomial is a number, a variable, or a _____ of a number and one or more variables.

| Monomials | Not Monomials |
|------------|-----------------------|
| 25, x, 40x | $x + 4$, $40x + 120$ |

To factor a number means to write it as a _____ of its _____. A monomial can be factored using the same method you would use to factor a number.

The greatest common factor (GCF) of two monomials is the greatest monomial that is a factor of _____.

You can use the Distributive Property and the work backward strategy to express a linear expression as a _____ of its factors.

Factor $4x - 28$.

$$4x = _ \cdot _ \cdot _$$

$$-28 = _ \cdot _ \cdot _ \cdot _$$

The GCF is _____

Factor $12x + 7y$.

$$12x = _ \cdot _ \cdot _ \cdot _$$

$$7y = _ \cdot _ \cdot _$$

The GCF is _____

