

9. In a sale all prices are reduced by 35%.
Alan bought a mobile phone in the sale for £149.50.
Work out the original price of the mobile phone. (3)
10. The price of a property was reduced by 24%, but the new price was later increased by 45%.
Work out the overall percentage increase of the property price. (2)



47. A number is increased by 25% and the resulting number is then decreased by 20%. The final number is what percent of the original number?

- A. 90%
- B. 95%
- C. 100%
- D. 105%
- E. 120%

2. To keep up with rising expenses, a motel manager needs to raise the \$40.00 room rate by 22%. What will be the new rate?

F. \$40.22

G. \$42.20

H. \$48.00

J. \$48.80

K. \$62.00

17. Leticia went into Discount Music to price CDs. All CDs were discounted 23% off the marked price. Leticia wanted to program her calculator so she could input the marked price and the discounted price would be the output. Which of the following is an expression for the discounted price on a marked price of p dollars?
- A. $p - 0.23p$
 - B. $p - 0.23$
 - C. $p - 23p$
 - D. $p - 23$
 - E. $0.23p$

- 33.** For a population that grows at a constant rate of $r\%$ per year, the formula $P(t) = p_o \left(1 + \frac{r}{100}\right)^t$ models the population t years after an initial population of p_o people is counted.

The population of the city of San Jose was 782,000 in 1990. Assume the population grows at a constant rate of 5% per year. According to this formula, which of the following is an expression for the population of San Jose in the year 2000 ?

- A. $782,000(6)^{10}$
- B. $782,000(1.5)^{10}$
- C. $782,000(1.05)^{10}$
- D. $(782,000 \times 1.5)^{10}$
- E. $(782,000 \times 1.05)^{10}$

7. If 40% of a given number is 8, then what is 15% of the given number?

- A. 1.2
- B. 1.8
- C. 3.0
- D. 5.0
- E. 6.5

30. A formula used to compute the current value of a savings account is $A = P(1 + r)^n$, where A is the current value; P is the amount deposited; r is the rate of interest for 1 compounding period, expressed as a decimal; and n is the number of compounding periods. Which of the following is closest to the value of a savings account after 5 years if \$10,000 is deposited at 4% annual interest compounded yearly?

- F.** \$10,400
- G.** \$12,167
- H.** \$42,000
- J.** \$52,000
- K.** \$53,782

6. Jorge's current hourly wage for working at Denti Smiles is \$12.00. Jorge was told that at the beginning of next month, his new hourly wage will be an increase of 6% of his current hourly wage. What will be Jorge's new hourly wage?
- F. \$12.06
 - G. \$12.60
 - H. \$12.72
 - J. \$18.00
 - K. \$19.20

- 21.** To get a driver's license, an applicant must pass a written test and a driving test. Past records show that 80% of the applicants pass the written test and 60% of those who have passed the written test pass the driving test. Based on these figures, how many applicants in a random group of 1,000 applicants would you expect to get driver's licenses?
- A.** 200
 - B.** 480
 - C.** 600
 - D.** 750
 - E.** 800

26. Due to inflation, a car that formerly sold for \$15,000 now sells for 10% more. Which of the following calculations gives the current cost, in dollars, of the car?

F. $15,000 + 10$

G. $15,000 + 15,000(0.01)$

H. $15,000 + 15,000(0.10)$

J. $15,000 + 15,000(10)$

K. $15,000(0.10)$

PERCENT INCREASE

The ORIGINAL cost of car

Plus 10% MORE OF 15K

H →

52. This year, 75% of the graduating class of Harriet Tubman High School had taken at least 8 math courses. Of the remaining class members, 60% had taken 6 or 7 math courses. What percent of the graduating class had taken fewer than 6 math courses?

- F. 0%
- G. 10%
- H. 15%
- J. 30%
- K. 45%

25%	62%
60%	
75%	

PERCENT

$$100\% - 75\% = 25\%$$

$$100\% - 60\% = 40\%$$

$$40\% \text{ of } 25\% = 10\%$$

X

G

13. According to a recent survey of students about the juice they each preferred, 20% of the students preferred cranberry juice, 40% preferred orange juice, 20% preferred grapefruit juice, and the remaining students preferred tomato juice. If each student preferred only 1 juice and 250 students preferred tomato juice, how many students were surveyed?

- A. 330
- B. 500
- C. 625
- D. 1,000
- E. 1,250

If 20% of TOTAL = 250, then
 $0.20t = 250$

PERCENT and TOTALS

If they all preferred one, then tomato is 20% of TOTAL because they all have to add up to 100%.

$$20\% \text{ cran} + 40\% \text{ OJ} + 20\% \text{ G} + 20\% \text{ T} = 100\%$$



25. The table below shows the age distribution of the student body at Memorial High School.

Age, in years	14	15	16	17	18
Percent of students	6%	28%	26%	31%	9%

What percent of the students are at least 16 years old?

- A. 34%
 B. 40%
 C. 50%
 D. 60%
 E. 66%

Variation of inequality

They are looking for the amount in percent of students who are greater than or equal to 16 $\Rightarrow 26 + 31 + 9 = 66$

Needs to
 TOTAL =
 100%

26. What percent of $\frac{2}{3}$ is $\frac{1}{3}$?

- F. 22%
- G. 33%
- H. 50%
- J. 67%
- K. 200%

Translating to solve for unknown.

$$\frac{x}{100} * \frac{2}{3} = \frac{1}{3} \quad \text{or you can think} \quad \frac{2}{3} = \frac{1}{3} + \frac{1}{3} \quad \text{so}$$
$$\frac{x}{100} = \frac{1}{3} * \frac{3}{2} = \frac{1}{2} \quad \text{one } \frac{1}{3} \text{ is half of } \frac{2}{3}$$

6. Ticket sales for this year's annual concert at County Stadium were \$350,000. The promoter is predicting that next year's ticket sales, in dollars, will be 60% greater than this year's. How many dollars in ticket sales is the promoter predicting for next year?

- F. \$350,060
- G. \$410,000
- H. \$560,000
- J. \$583,333
- K. \$950,000

H

→

Slow Method → % change formula = $\frac{x - 350,000}{350,000} = 60\%$

Quick Method $\$250,000 \times 1.6 = \$560,000$

$= x - 350,000 = 210,000$

$x = 560,000$

10. What is 5% of 50?

- F. 0.5
- G. 2.5
- H. 5
- J. 10
- K. 25

6

DO YOUR FIGURING HERE.

"Of" Means
Multiply

$$50 \times 0.05 = 2.5$$

5. Of the 200 parking spaces in a parking lot, 4% of the spaces are reserved for handicapped parking, and 12 of the nonhandicapped spaces are suitable for compact cars only. How many spaces that are NOT reserved for handicapped parking are suitable for noncompact cars?

- A. 192
- B. 188
- C. 184
- D. 180
- E. 168

DO YOUR FIGURING HERE.

organizing data

$$4\% \text{ of } 200 = 0.04 \times 200 = 8$$
$$8 + 12 = 20 \quad 200 - 20 = 180$$

28. In Terrell's history class, all tests count equally. So far, Terrell has taken 2 of the 3 tests in history and earned scores of 93% and 82%, respectively. What is the minimum percent Terrell needs on the third test to have a test average of at least 85%?

F. 89%

G. 88%

H. 87%

J. 83%

K. 80%

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- D. 750
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1. If a student got 95% of the questions on a 60-question test correct, how many questions did the student complete correctly?

a. 57

b. 38

c. 46

d. 53

e. 95

- 49.** The senior class at Roosevelt High has 540 students. Kristen won the election for class president with 60% of the vote. Of that 60%, 75% were female. Assuming that the entire senior class voted, how many females voted for Kristen?
- a.** 195
 - b.** 405
 - c.** 324
 - d.** 227
 - e.** 243

27. The sign below advertises a sale on coats. What is the sale price of a coat with a regular price of \$84.00?

SALE SALE SALE
 All Coats
 3/4 off the regular price!
 SALE SALE SALE

- A. \$ 9.00
- B. \$21.00
- C. \$42.00
- D. \$63.00
- E. \$83.25

PERCENT or fraction OF A TOTAL
 Question asks Sale Price
 The sale price is $\frac{3}{4}$ off not $\frac{3}{4}$ of
 If it's $\frac{3}{4}$ off, then you are only paying $\frac{1}{4}$ of full price
 $\frac{1}{4}$ of 84 = 21

OR 0.25
 84 = 21

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- J. \$583,333
- K. \$950,000

H



Slow Method → % change formula = $\frac{x - 350,000}{350,000} = 60\%$

Quick Method $\$250,000 \times 1.6 = \$400,000$

$x - 350,000 = 210,000$

$x = 560,000$

5. $\sqrt{34}$

52. While watching TV from 7:00 P.M. to 8:00 P.M., you count 20 commercials, each 30 seconds long. To the nearest percent, what percent of the hour is taken up by commercials?

- F. 6%
- G. 10%
- H. 17%
- J. 50%
- K. 60%

H

$$\frac{600}{3600} = \frac{1}{6} \approx 17\%$$

$$20 \times 30 = 600 \text{ seconds of Commercial}$$

$$60 \text{ min.} \times 60 \text{ sec} = 3,600 \text{ seconds in an hour}$$

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Variation of inequality

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needs to
total =
66%



A poll of 200 registered voters was taken before the election for mayor of Springdale. All 200 voters indicated which 1 of the 4 candidates they would vote for. The results of the poll are given in the table below.

Candidate	Number of voters
Blackcloud	50
Lue	80
Gomez	40
Whitney	30

13. What percent of the voters polled chose Whitney in the poll?
- A. 15%
 - B. 20%
 - C. 25%
 - D. 30%
 - E. 40%
14. If the poll is indicative of how the 10,000 registered voters of Springdale will actually vote in the election, which of the following is the best estimate of the number of votes Lue will receive in the election?
- F. 1,500
 - G. 2,500
 - H. 4,000
 - J. 5,000
 - K. 8,000
15. If the information in the table were converted into a circle graph (pie chart), then the central angle of the sector for Gomez would measure how many degrees?
- A. 54°
 - B. 72°
 - C. 90°
 - D. 108°
 - E. 144°
-

Kaylee is planning to purchase a car. She will need to borrow some of the money and has a chart, shown below, to use to approximate her monthly payment. The chart gives the approximate monthly payment per \$1,000 borrowed.

Monthly payment per \$1,000 borrowed for various annual rates and various numbers of payments			
Annual interest rate	Number of monthly payments		
	36	48	60
5%	\$29.97	\$23.03	\$18.87
8%	\$31.34	\$24.41	\$20.28
10%	\$32.27	\$25.36	\$21.24
12%	\$33.22	\$26.34	\$22.24

42. Kaylee found a used car she is thinking about purchasing. The list price is \$8,795. She calculates that she will need to borrow \$6,500. Approximately what would her monthly payment be if she borrowed the money for 36 months at an annual interest rate of 10% ?
- F. \$164.84
 G. \$171.21
 H. \$209.76
 J. \$234.72
 K. \$283.81
43. A local dealership is having an end-of-the-model-year clearance sale and is offering 5% annual interest on new-car loans for 36, 48, or 60 months. The maximum amount Kaylee can budget for her monthly car payment is \$300. Of the following loan amounts, which one is the maximum Kaylee can borrow at 5% annual interest and stay within her budget?
- A. \$10,000
 B. \$13,000
 C. \$14,000
 D. \$15,000
 E. \$20,000
44. Another dealership is offering 5-year loans with a 9% annual interest rate. Kaylee uses her chart to estimate the payment per \$1,000 borrowed. Of the following, which is most likely the monthly payment per \$1,000 borrowed?
- F. \$20.52
 G. \$20.76
 H. \$20.85
 J. \$21.00
 K. \$21.74
-