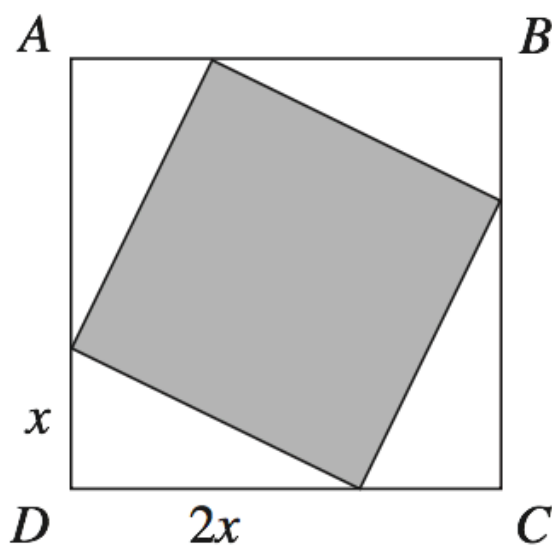


33. In the figure below, $ABCD$ is a square. Points are chosen on each pair of adjacent sides of $ABCD$ to form 4 congruent right triangles, as shown below. Each of these has one leg that is twice as long as the other leg. What fraction of the area of square $ABCD$ is shaded?



- A. $\frac{1}{9}$
- B. $\frac{2}{9}$
- C. $\frac{4}{9}$
- D. $\frac{5}{9}$
- E. $\frac{8}{9}$

20. The length of a rectangle is 3 times the length of a smaller rectangle. The 2 rectangles have the same width. The area of the smaller rectangle is A square units. The area of the larger rectangle is kA square units. Which of the following is the value of k ?

F. $\frac{1}{9}$

G. $\frac{1}{3}$

H. 1

J. 3

K. 9

- 51.** For every hour that Marcia spends making frames in the second week of December each year, she donates \$3 from that week's profit to a local charity. This year, Marcia made 4 large frames and 2 small frames in that week. Which of the following is closest to the percent of that week's profit Marcia donated to the charity?
- A.** 6%
 - B.** 12%
 - C.** 14%
 - D.** 16%
 - E.** 19%

9. It costs a dollars for an adult ticket to a reggae concert and s dollars for a student ticket. The difference between the cost of 12 adult tickets and 18 student tickets is \$36. Which of the following equations represents this relationship between a and s ?

A. $\frac{12a}{18s} = 36$

B. $216as = 36$

C. $|12a - 18s| = 36$

D. $|12a + 18s| = 36$

E. $|18a + 12s| = 36$

26. A car rental company charges \$50.00 per day plus \$0.80 per mile for a full-size car, and charges \$30.00 per day plus \$0.50 per mile for a compact car. Which expression below gives the amount, in dollars, that the charge for a full-size car exceeds the charge for a compact car, when each is rented for x days and y miles?

- F. $-20x - 0.30y$
- G. $20x + 0.30y$
- H. $20x + 30y$
- J. $20x + 1.30y$
- K. $80x + 1.30y$

$$\begin{array}{r} 50x + 0.80y \\ - 30x + 0.50y \\ \hline 20x + 0.30y \end{array}$$

FACTORS

Difference
says
subtract

8. The 6 consecutive integers below add up to 447.

$$x - 2$$

$$x - 1$$

$$x$$

$$x + 1$$

$$x + 2$$

$$x + 3$$

What is the value of x ?

F. 72

G. 73

H. 74

J. 75

K. 76

-
- 58.** For every positive 2-digit number, x , with tens digit t and units digit u , let y be the 2-digit number formed by reversing the digits of x . Which of the following expressions is equivalent to $x - y$?
- F.** $9(t - u)$
 - G.** $9(u - t)$
 - H.** $9t - u$
 - J.** $9u - t$
 - K.** 0

8. Uptown Cable, a cable TV provider, charges each customer \$120 for installation, plus \$25 per month for cable programming. Uptown's competitor, Downtown Cable, charges each customer \$60 for installation, plus \$35 per month for cable programming. A customer who signs up with Uptown will pay the same total amount for cable TV as a customer who signs up with Downtown if each pays for installation and cable programming for how many months?

- F. 3
- G. 6
- H. 10
- J. 18
- K. 30

- 13.** For 2 consecutive integers, the result of adding the smaller integer and triple the larger integer is 79. What are the 2 integers?
- A.** 18, 19
 - B.** 19, 20
 - C.** 20, 21
 - D.** 26, 27
 - E.** 39, 40

54. The length of a rectangle is twice the width. If the perimeter of the rectangle is 72 feet, what is the length of the rectangle?

f. 12 feet

g. 6 feet

h. 36 feet

i. 48 feet

j. 24 feet

3. The balance in Joan's savings account tripled during the year. Joan then withdrew \$500, and the resulting balance was \$100. What was the balance in the account before it tripled?

- A. \$200
B. \$300
C. \$400
D. \$500
E. \$600

$$\begin{aligned}3(x) - 500 &= 100 \\3x &= 600 \\x &= 200\end{aligned}$$

Translate English to Math

MONEY
@
START

16. A ticket for a movie at the Hazelnut Cinema costs \$5.00. Latoya treats her younger brother to a movie at the Hazelnut Cinema. She gives him $\frac{1}{2}$ the money she brought with her, for his ticket and a snack. When he asks to play a video game, she gives him \$1.00. That leaves Latoya exactly enough money to buy her own ticket. How much money did Latoya bring with her?

- F. \$10.00
- G. \$11.00
- H. \$12.00
- J. \$13.00
- K. \$14.00

Let x be the amount of MONEY Latoya began with.
Set up Algebra Problem

To solve for the answer.

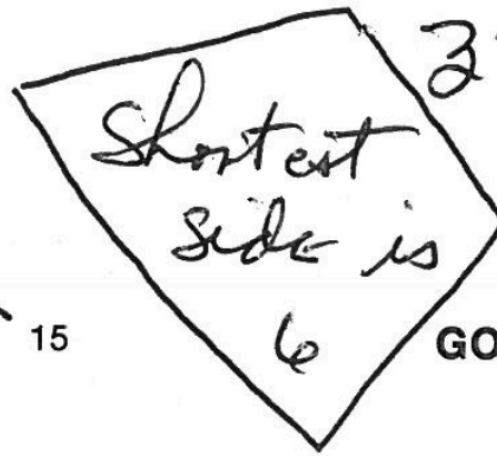
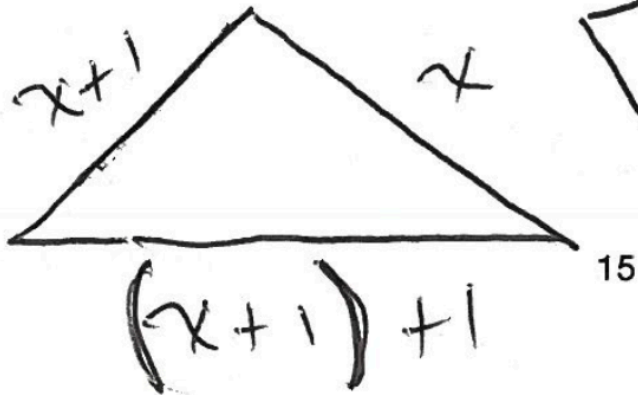
$$\frac{1}{2}x - \$1 = \$5$$

$$\frac{1}{2}x = 6 \text{ so } x = \$12$$

DON'T LET
"SNACK" CONFUSE
YOU.

9. In a certain triangle, the longest side is 1 foot longer than the second-longest side, and the second-longest side is 1 foot longer than the shortest side. If the perimeter is 21 feet, how many feet long is the shortest side?

- A. 6
- B. 7
- C. 8
- D. 9
- E. 10



$$x + (x+1) + (x+1)+1 = 21$$

$$3x + 3 = 21$$

$$3x = 18$$

$$x = 6$$

GO ON TO THE NEXT PAGE.

49. Elkville High won a Friday night basketball game by 10 points; the next night they scored 25 points more than on Friday and again won by 10 points. The sum of the opponents' scores for the 2 games was 109. How many points did Elkville score on Friday?

- A. 37
- B. 41
- C. 46
- D. 52
- E. 72

$$E_1 + E_2 - 109 = 20$$

$$E_1 + E_1 + 25 - 109 = 20$$

$$2E_1 = 154$$

WARNING ⇒ TIME WASTER if you don't set up properly.

they won by ten both nights
 $E_2 - E_1 = 25$ so $E_2 = E_1 + 25$

55. The area of a triangle is 80 square inches. Find the height if the base is 5 inches more than the height.

a. $\frac{1 + \sqrt{629}}{2}$

b. $\frac{-9 \pm \sqrt{5}}{2}$

c. $4 \pm \sqrt{85}$

d. $5 - \sqrt{665}$

e. $\frac{-5 + \sqrt{665}}{2}$

-
27. A hot-air balloon 70 meters above the ground is falling at a constant rate of 6 meters per second while another hot-air balloon 10 meters above the ground is rising at a constant rate of 15 meters per second. To the nearest tenth of a second, after how many seconds will the 2 balloons be the same height above the ground?
- A. 8.9
 - B. 6.7
 - C. 2.9
 - D. 0.4
 - E. 0.2