

ACT Math Practice Paper 11

SET-1

1. On a level field, a telephone pole 24 feet tall casts a shadow 6 feet long, and at the same time of day, another nearby telephone pole casts a shadow 18 feet long. How many feet tall is the second telephone pole?

- A. 6
- B. 12
- C. 24
- D. 36
- E. 72

2. The membership fees for WebFilms consist of a monthly charge of \$14 and a one-time new-member fee of \$16. Sherwood made a credit card payment of \$100 to pay his WebFilms fees for a certain number of months, including the new-member fee. How many months of membership did Sherwood include in his credit card payment?

- F. 4
- G. 6
- H. 7
- J. 12
- K. 14

3. If  $y = -6$ , what is the value of  $\frac{y^2 - 4}{y - 2}$  ?

- A. -8
- B. -4
- C. 4
- D. 9
- E. 12

4. A school offered its students an optional field trip. If 15 or fewer students went on the field trip, the charge for each student would be \$11.50. If more than 15 students chose to go on the field trip, the charge for each student would be \$10.25. 18 students opted to go on the tour, but each pre-paid \$11.50. The students agreed to put the extra amount toward dinner on the trip. How much total money will be put toward dinner on the trip?

- F. \$12.50
- G. \$14.75

H. \$21.75

J. \$22.50

K. \$33.00

5. A 16-piece orchestra wants to choose one of its members to speak at performances. They decide that this member CANNOT be one of the 4 soloists in the group. What is the probability that Itzhak, who is NOT a soloist, will be chosen as the speaker?

A. 0

B.  $\frac{1}{16}$

C.  $\frac{1}{12}$

D.  $\frac{1}{4}$

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

6. What is the perimeter, in feet, of a rectangle with width 8 feet and length 17 feet?

F. 25

G. 34

H. 50

J. 136

K. 272

7. Passes to the Renaissance Faire cost \$9 when purchased online and \$12 when purchased in person. The group sponsoring the fair would like to make at least \$4,000 from sales of passes. If 240 passes were sold online, what is the minimum number of tickets that must be sold in person in order for the group to meet its goal?

A. 153

B. 154

C. 290

D. 334

E. 445

$$\frac{9}{q} = \frac{6}{10}$$

8. For what value of  $q$  is the equation  $\frac{9}{q} = \frac{6}{10}$  true?

F. 3

G. 5

H. 13

J. 15

K. 19

9. If  $-9(y - 13) = 16$ , then  $y = ?$

A.  $-\frac{133}{9}$

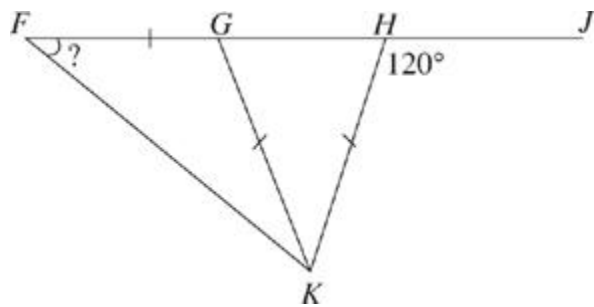
B.  $-\frac{29}{9}$

C.  $-\frac{16}{9}$

D.  $-\frac{1}{3}$

E.  $\frac{101}{9}$

10. In the figure below,  $F$ ,  $G$ ,  $H$ , and  $J$  are collinear.  $\overline{FG}$ ,  $\overline{GK}$ , and  $\overline{HK}$  are line segments of equivalent length, and the measure of  $\angle JHK$  is  $120^\circ$ . What is the degree measure of  $\angle GFK$ ?



F.  $30^\circ$

G.  $45^\circ$

H.  $60^\circ$

J.  $120^\circ$

K.  $150^\circ$

11. If  $f(x) = 7x^2 - 9x + 4$ , then  $f(-3) = ?$

A. -32

B. -2

C. 32

D. 40

E. 94

12. What is the least common multiple of 25, 16, and 40?

F. 27

G. 32

H. 320

J. 400

K. 16,000

13. While working on a problem on his calculator, Tex had meant to multiply a number by 3, but he accidentally divided the number by 3. Which of the following calculations could Tex then do to the result on the screen in order to obtain the result he originally wanted?

A. Multiply by 3

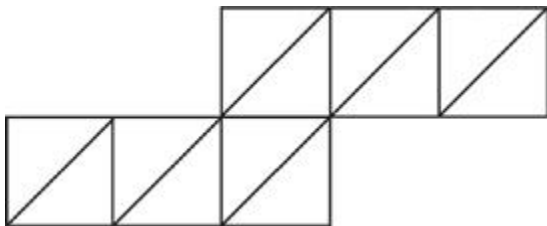
B. Multiply by 9

C. Divide by 3

D. Divide by 9

E. Add the original number

14. The 8-sided figure below is divided into 12 congruent isosceles right triangles. The total area of the 12 triangles is 96 square centimeters. What is the perimeter, in centimeters, of the figure?



F. 8

G.  $20 + 4\sqrt{2}$

H. 48

J.  $40 + 8\sqrt{2}$

K. 56

15. In  $\triangle XYZ$ ,  $\angle Y$  is a right angle and  $\angle Z$  measures less than  $52^\circ$ . Which of the following phrases best describes the measure of  $\angle X$ ?

A. Greater than  $38^\circ$

B. Equal to  $38^\circ$

C. Equal to  $45^\circ$

D. Equal to  $142^\circ$

E. Less than  $38^\circ$

## SET 2

1. Among the following arithmetic operations, which could the emoticon 😊 represent given that the equation  $(8 \text{ 😊 } 2)^3 - (4 \text{ 😊 } 1)^2 = 48$  is true?

I. Subtraction

II. Multiplication

III. Division

F. I only

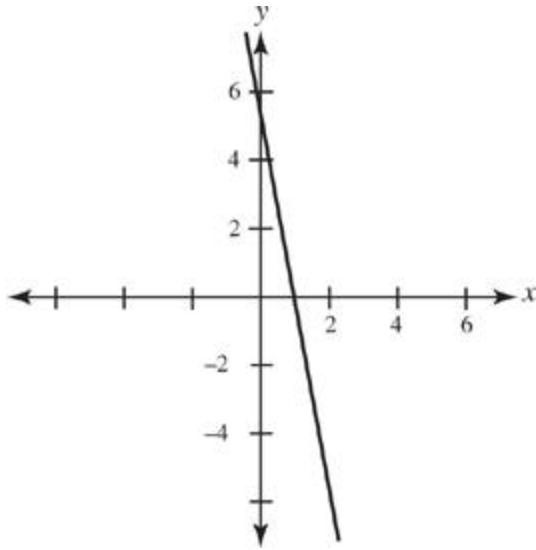
G. III only

H. II and III only

J. I and III only

K. I, II, and III

2. Which of the following equations represents the linear relation shown in the standard  $(x,y)$  coordinate plane below?



- A.  $y = -5x$
- B.  $y = -6x$
- C.  $y = -2x + 2$
- D.  $y = -5x + 6$
- E.  $y = -2x + 6$

3. An integer,  $x$ , is subtracted from 6. That difference is then multiplied by 3. This product is 15 more than half the original integer. Which of the following equations represents this relationship?

F.  $3(6 - x) = \frac{x}{2} + 15$

G.  $3(6 - x) + 15 = \frac{x}{2}$

H.  $3(6 - x) = 15 - \frac{x}{2}$

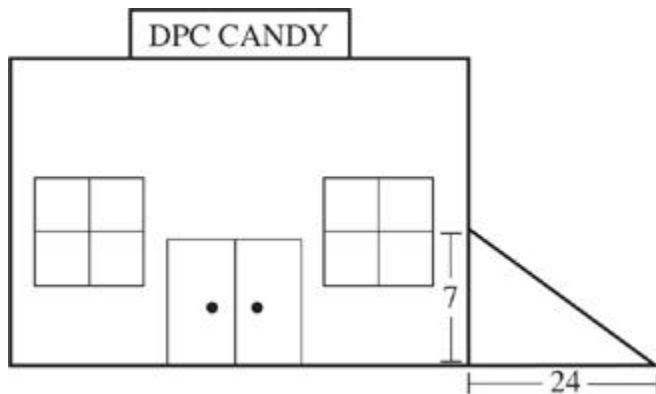
J.  $x - 6 \times 3 = \frac{15}{2}$

K.  $6 + 3 = \frac{x}{2} + 15$

4. The employees of two factories, X and Y, are comparing their respective production records. Factory X has already produced 18,000 units and can produce 120 units per day. Factory Y has produced only 14,500 units but can produce 155 units per day. If  $d$  represents the number of days (that is, days during which each factory is producing its maximum number of units), which of the following equations could be solved to determine the number of days until X's total production equals Y's total production?

- A.  $18,000 + 120d = 14,500 + 155d$
- B.  $18,000 + 155d = 14,500 + 120d$
- C.  $(18,000 + 120)d = (14,500 + 155)d$
- D.  $(120 + 155)d = 18,000 - 14,500$
- E.  $(120 + 155)d = 18,000 + 14,500$

5. A ramp used to access the side entrance to the DPC Candy Store, which is located 7 meters above the ground, covers 24 meters along the level ground from the edge of the building. How many meters long is the ramp?



- F. 13
  - G. 14
  - H. 17
  - J. 23
  - K. 25
6. The expression  $9(y + 3) - 2(4y - 4)$  is equivalent to:
- A.  $y - 1$
  - B.  $y + 15$
  - C.  $y + 18$
  - D.  $y + 23$
  - E.  $y + 35$
7. If  $a + 3b = 27$  and  $a - 3b = 9$ , then  $b = ?$
- F. 3
  - G. 9

H. 14

J. 18

K. 36

8. When  $(2x + 4)^2$  is written in the format  $ax^2 + bx + c$ , where  $a$ ,  $b$ , and  $c$  are integers, what is the value of  $a + b - c$ ?

A. -20

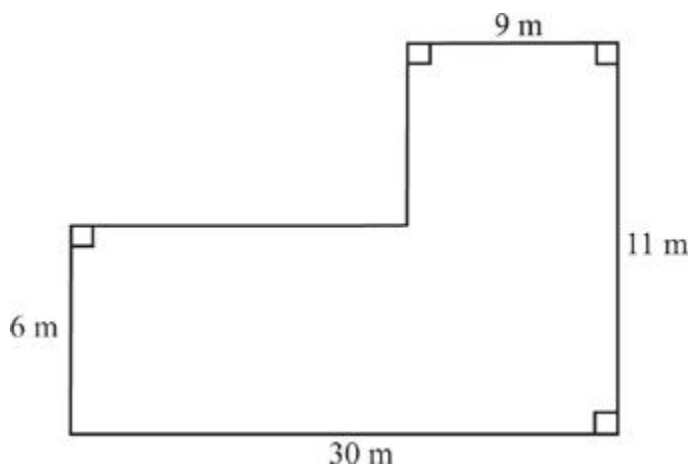
B. 4

C. 20

D. 32

E. 36

9. What is the area, in square meters, of the figure below?



F. 336

G. 330

H. 225

J. 82

K. 56

10. The table below gives the values of two functions,  $g$  and  $h$ , for various values of  $x$ . One of the functions expresses a relationship that can be expressed by the formula  $a + bx$ , where  $a$  and  $b$  are real number coefficients. What is the value of that function for  $x = 0$ ?

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A. 0

B. 0.5

C. 1

D. 2

E. 9

11. What is the slope of the line represented by the equation  $10y - 16x = 13$ ?

F. -16

G.  $\frac{3}{10}$

H.  $\frac{8}{5}$

J. 10

K. 16

12. What is the sum of the 2 solutions of the equation  $x^2 + 5x - 24 = 0$ ?

A. -24

B. -8

C. -5

D. 0

E. 5

**13.** Two similar triangles have perimeters in the ratio 5:6. The sides of the larger triangle measure 12 in, 7 in, and 5 in. What is the perimeter, in inches, of the smaller triangle?

F. 18

G. 20

H. 22

J. 24

K. 32

**14.** In early November in Winnipeg, Manitoba, the temperatures for each of nine consecutive days were  $-9^{\circ}\text{C}$ ,  $3^{\circ}\text{C}$ ,  $-7^{\circ}\text{C}$ ,  $2^{\circ}\text{C}$ ,  $5^{\circ}\text{C}$ ,  $1^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$ ,  $-8^{\circ}\text{C}$ , and  $-7^{\circ}\text{C}$ . What was the median of the temperatures for these nine days in early November?

A.  $-7^{\circ}\text{C}$

B.  $0^{\circ}\text{C}$

C.  $1.5^{\circ}\text{C}$

D.  $3^{\circ}\text{C}$

E.  $5^{\circ}\text{C}$

**15.** When asked the price, in dollars, of his fancy calculator, Albert responded, "If you take the square root

of the price, then add  $\frac{3}{8}$  the price, the result is 66." What is the price, in dollars, of Albert's calculator?

F. 169

G. 144

H. 121

J. 13

K. 12