ACT MATH Practice Paper 9

SET 1

1. At a convenience store, two candy bars and two bags of potato chips cost $4.00, and three candy bars and two bags of potato chips cost $4.75. What is the price of one bag of potato chips?

A. $0.50

B. $0.75

C. $1.00

D. $1.25

E. $1.50

2. Which of the following is the greatest common factor of 60 and 64?

F. 2

G. 4

H. 6

J. 8

K. 10

3. A teacher takes 5 children on a field trip to a geological museum. As a souvenir, the group receives a bag of stones. When the teacher divides the stones evenly among the children, each child receives exactly 24. If 6 children had been present, how many stones would each child have received?

A. 15

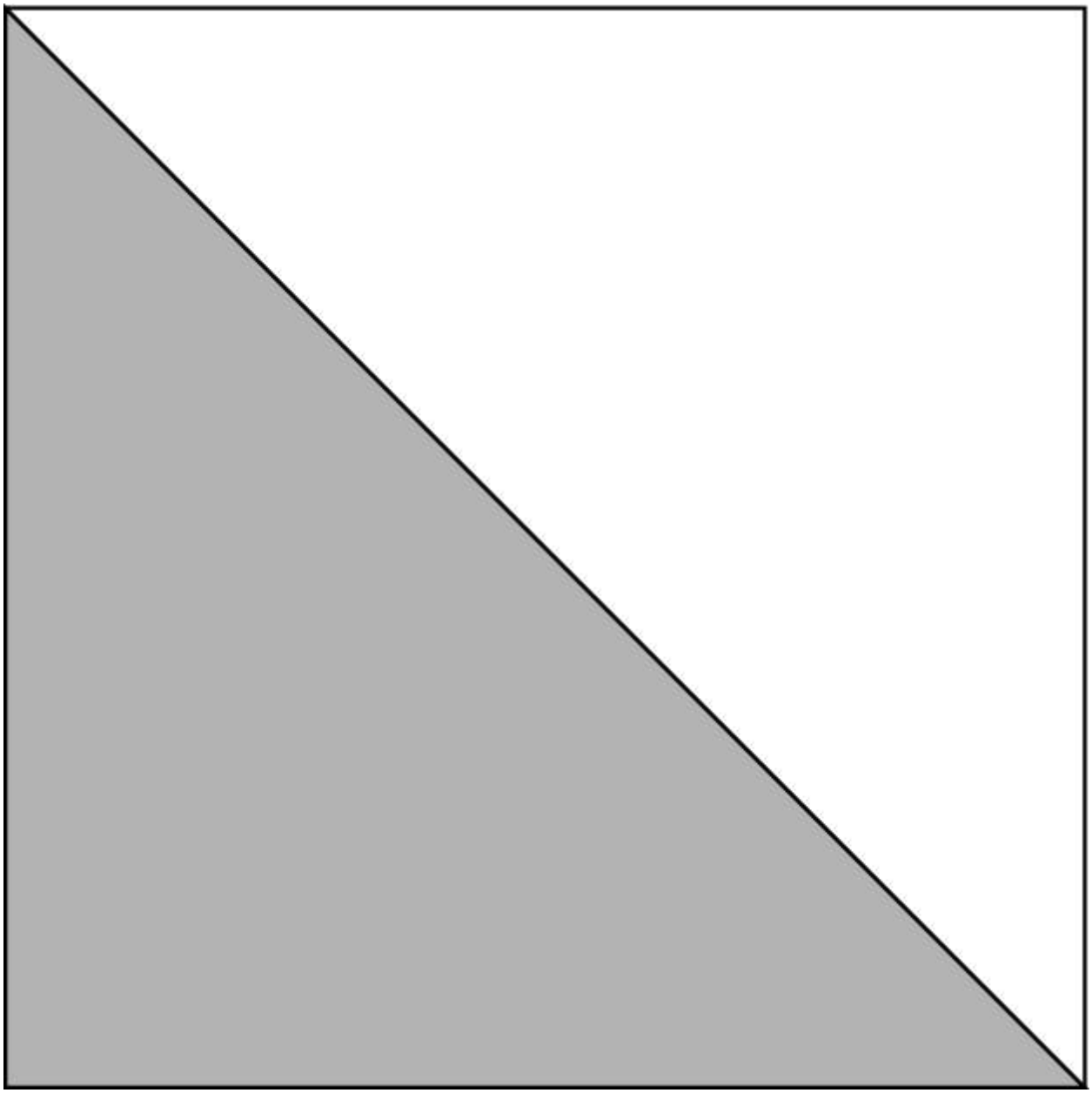
B. 16

C. 18

D. 20

E. 21

4. In the following figure, if the perimeter of the square is 20, what is the area of the shaded region?



F. 10

G. 12

H. 12.5

J. 20.5

K. 25

5. At a banquet of 36 people, every person had a choice among beef stroganoff, chicken divan, and linguini primavera. If 25% chose beef stroganoff and 17 people chose chicken divan, how many people chose linguini primavera?

A. 7

B. 8

C. 9

D. 10

E. 11

6. What is the value of $4v(w^2 - 3vw)$ given that $v = -1$ and $w = 4$

F. –84

G. –92

H. –98

J. –104

K. –112

7. Annette took 10 minutes to walk around a rectangular field. The length of the field is 4 times its width. How long would it take Annette to walk the width of the field?

A. 1 minute

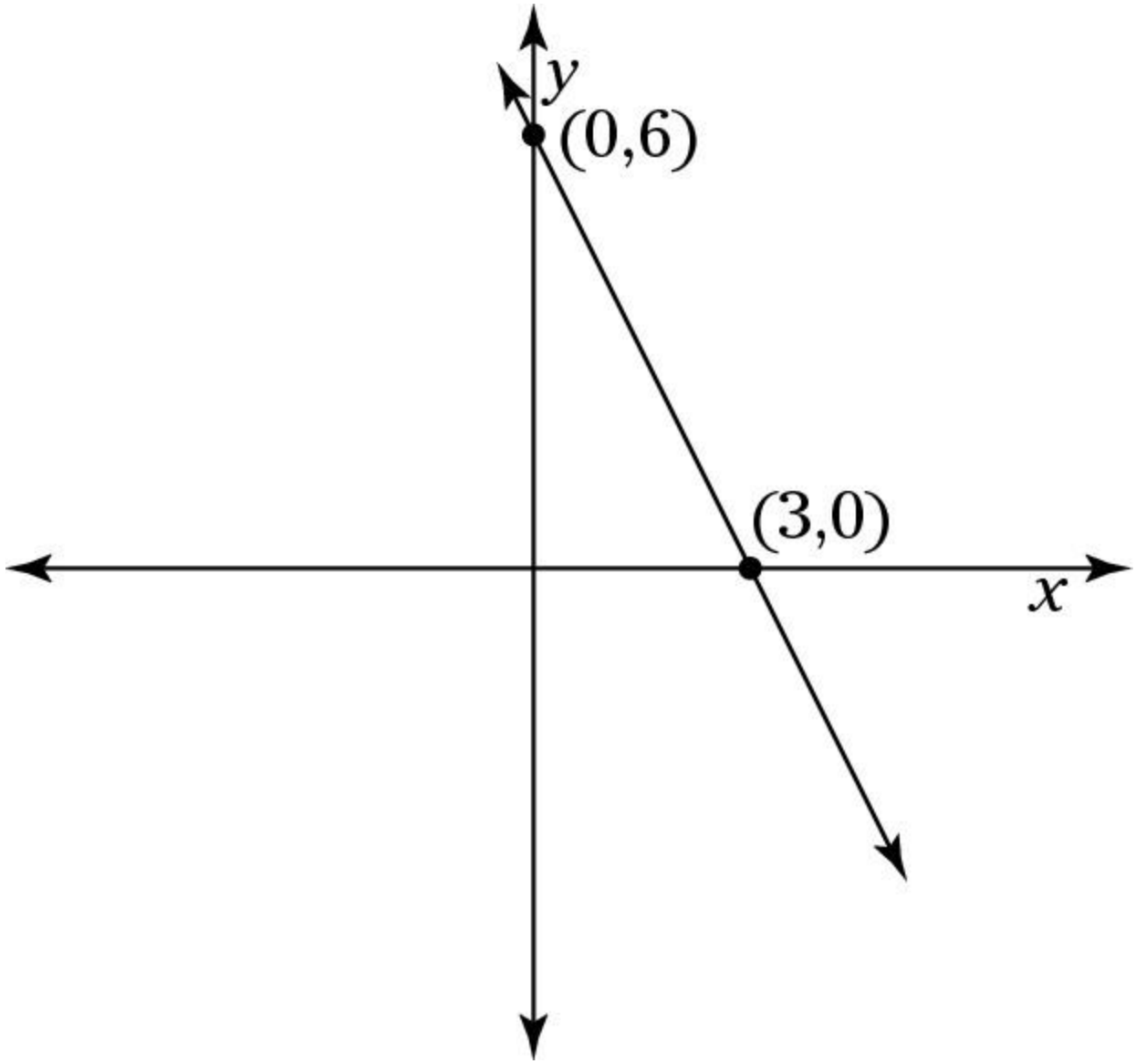
B. 2 minutes

C. 3 minutes

D. 4 minutes

E. 5 minutes

8. What is the slope of the line in the following graph?



F. 2

G. –2

H. $-\frac{1}{2}$

J. $\frac{4}{3}$

K. $-\frac{4}{3}$

9. Two values of *v* satisfy the equation |2*v*– 13| + 6 = 9. What is the sum of these values?

A. 4

B. 7

C. 9

D. 13

E. 17

10. Damien played golf on each of the four days of his vacation. His scores on the first three days were 93, 92, and 89, and his average for the four days was 90. What was his score on the fourth day?

F. 84

G. 85

H. 86

J. 87

K. 88

11. Which of the following inequalities is equivalent to $7-3p \geq \frac{5}{2}$?

A. $p \geq \frac{3}{2}$

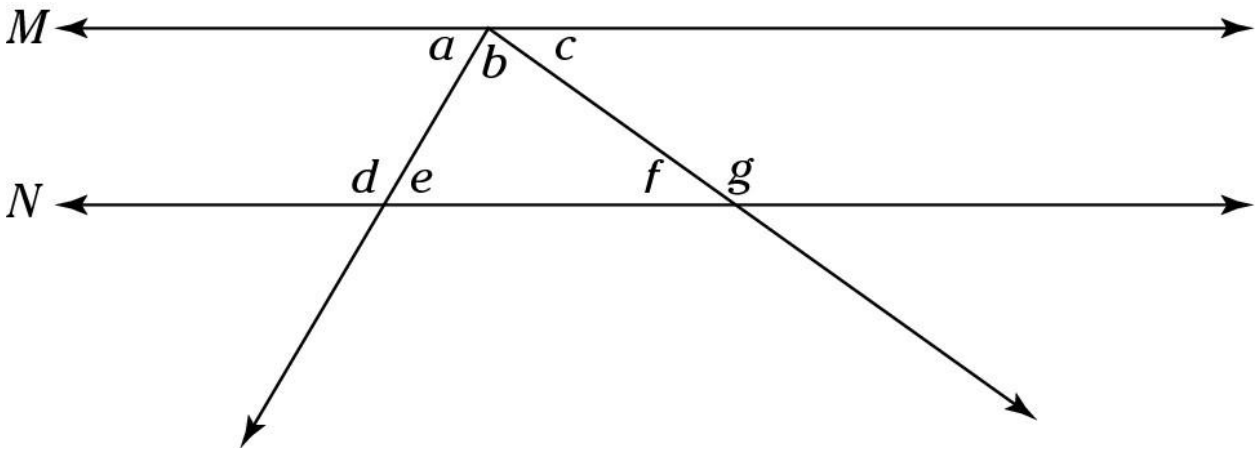
B. $p \leq \frac{3}{2}$

C. $p \geq -\frac{1}{2}$

D. $p \geq -\frac{3}{2}$

E. $p \leq -\frac{3}{2}$

12. In the following figure, line *M* and line *N* are parallel. Which of the answer choices does NOT necessarily add up to 180°?



F. $\angle a + \angle b + \angle f$

G. $\angle a + \angle d$

H. $\angle b + \angle e + \angle f$

J. $\angle d + \angle e$

K. $\angle e + \angle g$

13. On an *xy*-graph, what is the length of a line segment drawn from (–3, 7) to (6, –5)?

A. 15

B. 16

C. 17

D. 18

E. 20

14. Which of the following is NOT a factor of $4x^2y^4 - 12x^3y^2 - 8xy^3$?

F. $2x^2$

G. $2xy^2$

H. $-2y$

J. $4y^2$

K. $4xy$

15. Of the 126 students who applied for a full scholarship at Oxbow College, 9 received one. What is the ratio of students who received a scholarship to those who didn't?

A. 1 to 10

B. 1 to 11

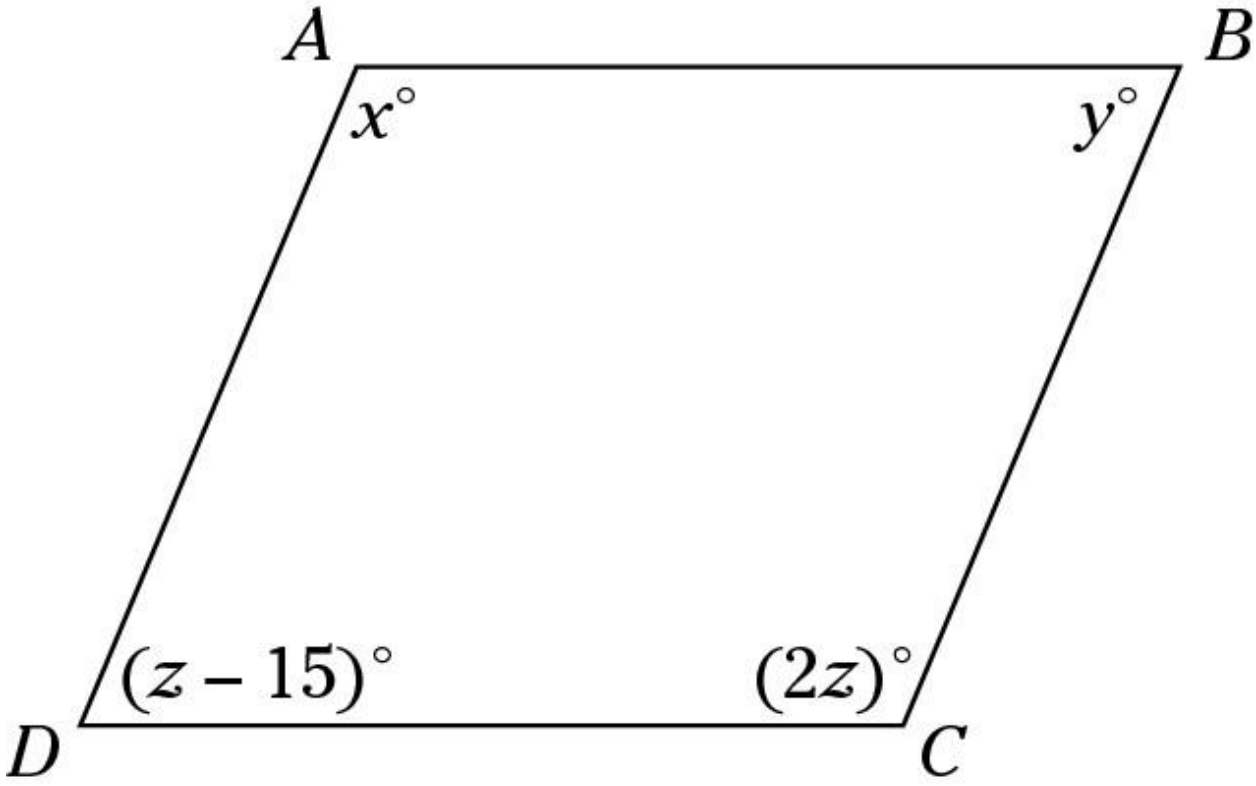
C. 1 to 12

D. 1 to 13

E. 1 to 14

SET 2

1. In the following figure, each of the four angles in the parallelogram is as shown. What is the value of *y*?



F. 30

G. 35

H. 40

J. 45

K. 50

2. If 2*x*– *y*= 32 and 5*x*+ 3*y*= 14, then *xy*=

A. 35

B. –40

C. 75

D. 100

E. –120

3. What is the value of *a* in terms *b* if $\frac{a}{b}+\frac{a+2}{3b}=\frac{1}{4}$?

F. $\frac{b+4}{2}$

G. $\frac{b-4}{2}$

H. $\frac{3b-2}{4}$

J. $\frac{3b+8}{16}$

K. $\frac{3b-8}{16}$

4. If *p* percent of 250 is 75, what is 75% of *p*?

A. 22.5

B. 25

C. 75

D. 225

E. 250

5. What is the slope of the line $9x - 3y = 10$?

F. 3

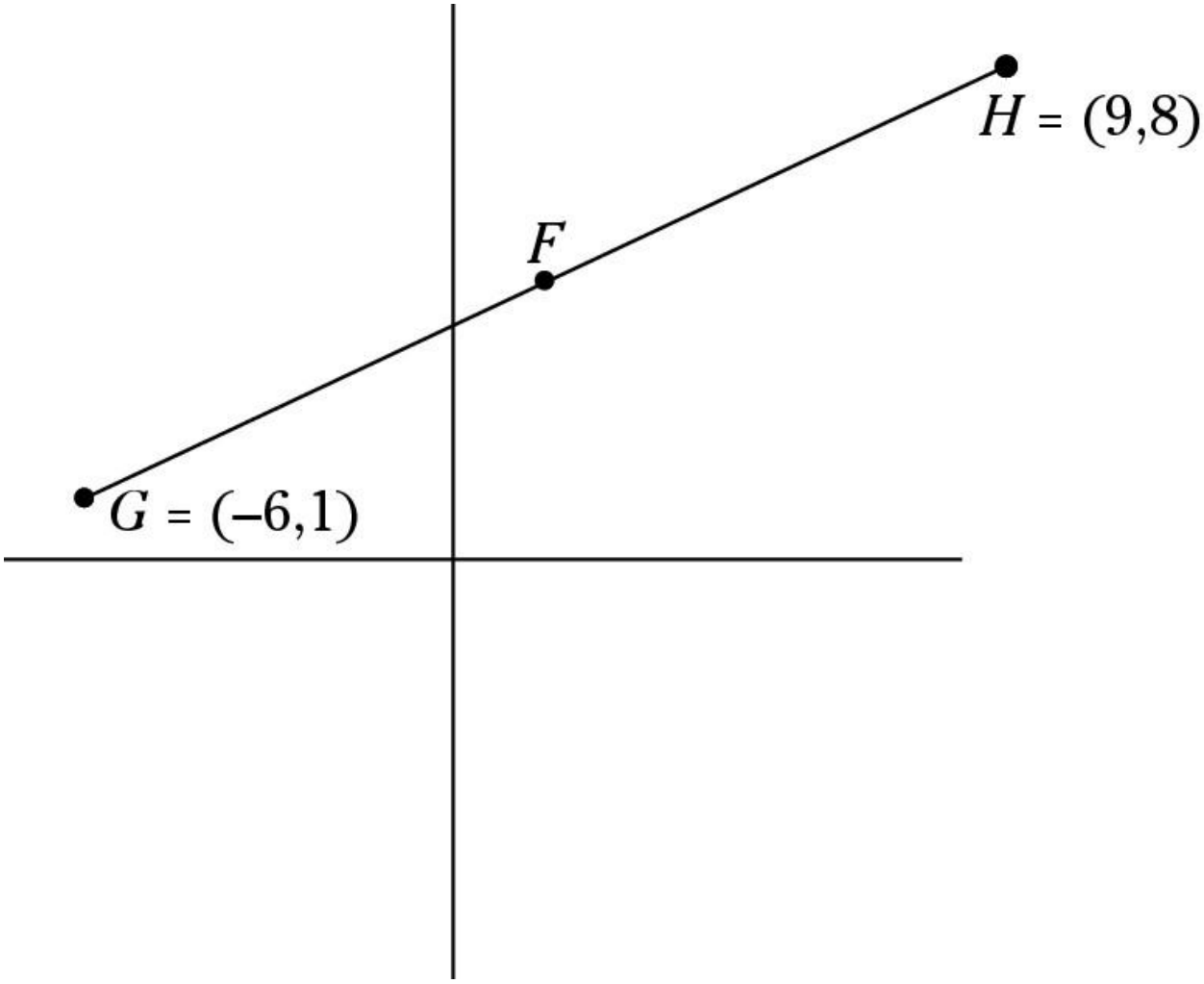
G. –3

H. 9

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

K. $-\frac{10}{3}$

6. In the following figure, *f* is the midpoint of $\overline{GH}$. Which of the following are the coordinates of *f*?



A. $(1,4)$

B. $(2,5)$

C. $\left(\frac{3}{2},4\right)$

D. $\left(\frac{3}{2},\frac{9}{2}\right)$

E. $\left(2,\frac{9}{2}\right)$

7. If $|6 - 4n| > 1$, which of the following must be true?

F. $\frac{5}{4} < n < \frac{7}{4}$

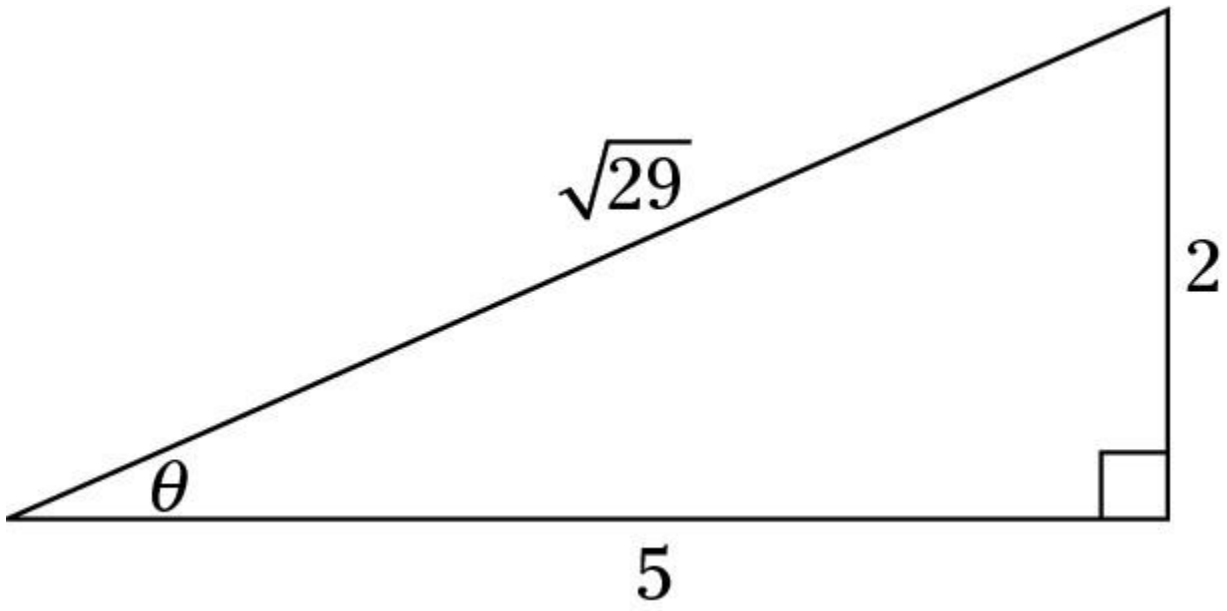
G. $-\frac{5}{4} < n < \frac{7}{4}$

H. $-\frac{7}{4} < n < \frac{5}{4}$

J. $n < \frac{5}{4}$ or $n > \frac{7}{4}$

K. $n < -\frac{5}{4}$ or $n > \frac{7}{4}$

8. In the following figure, sin θ=



A. $\frac{2}{5}$

B. $\frac{5}{2}$

C. $\frac{\sqrt{29}}{2}$

D. $\frac{\sqrt{29}}{5}$

E. $\frac{2\sqrt{29}}{29}$

9. The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$, and the formula for the surface area of a sphere is $A = 4\pi r^2$. If a sphere has a surface area of 36π, what is its volume?

F. 27π

G. 36π

H. 54π

J. 72π

K. 108π

10. What is a possible value of *x* if $\sqrt{2x+3}-1=x$?

A. $\sqrt{2}$

B. $\sqrt{3}$

C. $\sqrt{5}$

D. $\sqrt{7}$

E. $\sqrt{11}$

11. If *m* and *n* are both factors of 75, which of the following could equal *m*+ *n:*

F. 12

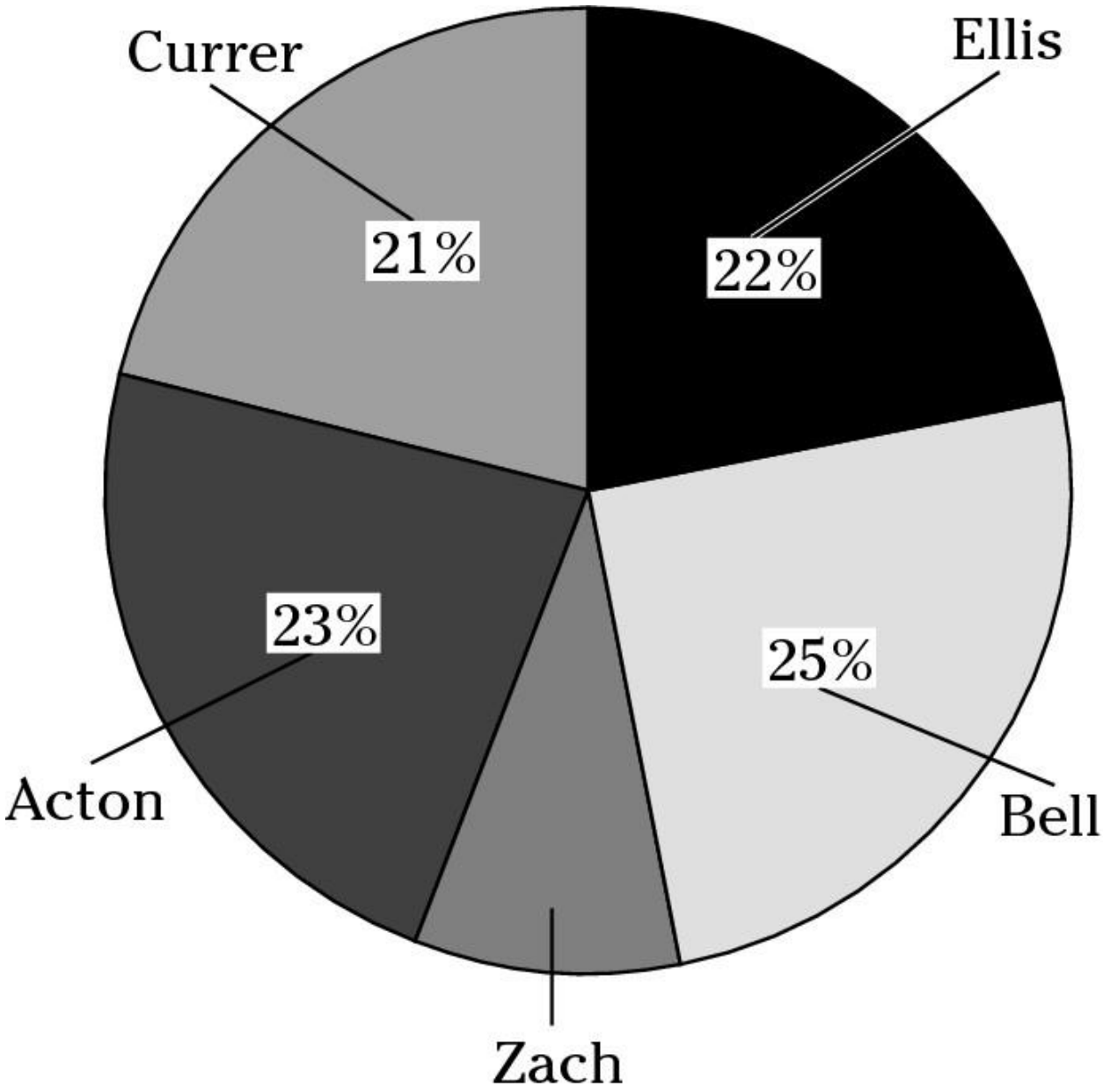
G. 18

H. 22

J. 36

K. 54

12. The following graph shows the percentage of shares controlled by five owners of a startup software company. Zach intends to sell his shares equally among the other four owners. After this sale is final, what percentage of the company will Bell own?



A. 25.25%

B. 27.25%

C. 27.50%

D. 39.90%

E. 34%

13. A clown at an amusement park makes animal shapes from twisted balloons. She sells each animal based on the number of balloons it requires, according to the following chart:

Number of balloons:	1	2	3	4	5	6	7
Price:	$4.00	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00

Which of the following functions equals the dollar cost of a balloon animal that contains x balloons?

F. $f(x) = x$

G. $f(x) = x + 4$

H. $f(x) = 4x + 0.5$

J. $f(x) = 0.5x + 4$

K. $f(x) = 0.5x + 3.5$

14. What is the sum of the two values of x that satisfy the equation $4x^2 - 3x - 1 = 0$?

A. 0.75

B. 1.25

C. 2.5

D. –0.75

E. –1.25

15. What is the result when you add the matrix $\begin{vmatrix} 4 & 5 \end{vmatrix}$ to the matrix $\begin{vmatrix} 7 & -3 \end{vmatrix}$ and multiply the result by 2?

F. $\begin{vmatrix} 26 \end{vmatrix}$

G. $\begin{vmatrix} 11 & 2 \end{vmatrix}$

H. $\begin{vmatrix} 22 & 4 \end{vmatrix}$

J. $\begin{vmatrix} 28 & -15 \end{vmatrix}$

K. $\begin{vmatrix} 54 & -30 \end{vmatrix}$