

1

Simplify : $7\sqrt{12}$

- A. $9\sqrt{3}$
- B. $14\sqrt{3}$
- C. $28\sqrt{3}$
- D. $\sqrt{84}$

2

To which set of numbers does $-\sqrt{36}$ belong?

- A. integers
- B. whole numbers
- C. natural numbers
- D. irrational numbers

3

Simplify : $\left(-\frac{2x^4}{3y^6}\right)^{-2}$

- A. $\frac{9y^{12}}{4x^8}$
- B. $\frac{9y^8}{4x^6}$
- C. $\frac{4y^{12}}{9x^8}$
- D. $-\frac{4x^8}{9y^{12}}$

4

Simplify : $(\sqrt[6]{y^7}) \div (\sqrt[8]{y^3})$

A. $y^{\frac{19}{24}}$

B. $y^{\frac{37}{24}}$

C. $y^{\frac{7}{16}}$

D. $y^{\frac{28}{9}}$

5 Determine the least common multiple of 15,20,24,27.

A. 1080

B. 40

C. 30

D. A LCM does not exist

6

Which of the following expressions is a factor of $6x^2 - 19x - 7$?

A. $3x - 7$

B. $3x - 1$

C. $2x - 7$

D. $2x - 1$

7

Which of the following expressions is a common factor of $12x^2 + 7x - 10$ and $9x^2 - 4$?

A. $3x + 2$

B. $3x - 2$

C. $4x + 5$

D. $4x - 5$

8

Expand : $(x + 5)(x - 4)(2x + 9)$

A. $2x^3 - 180$

B. $2x^3 + 9x^2 - 41x - 180$

C. $2x^3 + 11x^2 - 31x - 180$

D. $2x^3 + 11x^2 + 49x - 180$

9

Simplify : $(4x + 1)(2x + 3) - (3x - 7)(2x - 5)$

- A. $2x^2 - 15x + 38$
- B. $2x^2 - 15x - 32$
- C. $2x^2 + 43x + 38$
- D. $2x^2 + 43x - 32$

10

If $f(x) = 4 - x$, which of the following expressions is equal to $f(2x + 1)$?

- A. $x + 5$
- B. $-2x + 3$
- C. $-2x + 5$
- D. $-2x + 9$

11

Jasdeep and Kelsey converted 177 ounces into kilograms, as shown below.

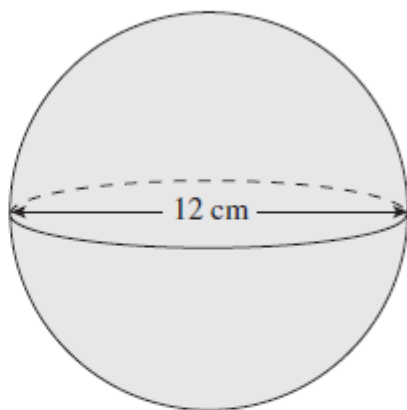
Jasdeep's Solution	Kelsey's Solution
$177 \text{ oz} \times \frac{28.35 \text{ g}}{1 \text{ oz}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 5 \text{ 017 950 kg}$	$177 \text{ oz} \times \frac{1 \text{ oz}}{28.35 \text{ g}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 0.0062 \text{ kg}$

Which statement below is true?

- A. Only Kelsey is correct because the units cancel.
- B. Only Jasdeep is correct because the units cancel.
- C. Only Kelsey is incorrect because the conversion factors are incorrect.
- D. They are both incorrect for different reasons.

12

What is the surface area of the sphere below?



- A. 113 cm^2
- B. 452 cm^2
- C. 905 cm^2
- D. 1810 cm^2

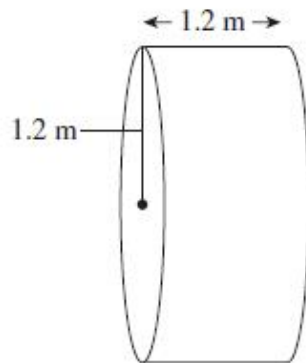
13

What is the radius of a spherical balloon with a volume of 36 m^3 ?

- A. 1.4 m
- B. 1.7 m
- C. 2.0 m
- D. 2.9 m

14

The solid cylinder below needs to be completely covered with one coat of paint.
One can of paint covers an area of 2.6 m^2 .

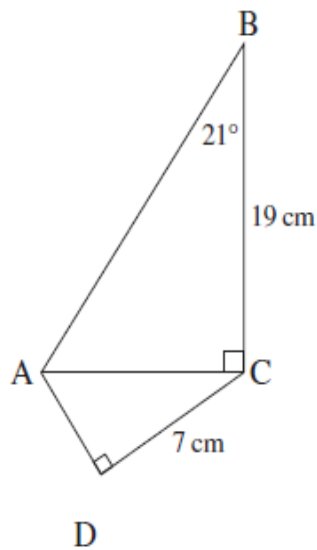


How many cans of paint will be required?

- A. 3
- B. 6
- C. 7
- D. 18

15

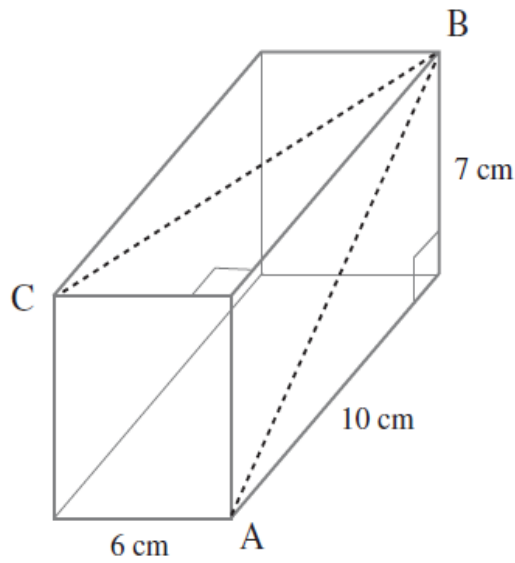
In the following diagram $\angle B = 21^\circ$, $BC = 19 \text{ cm}$ and $CD = 7 \text{ cm}$. Determine $\angle CAD$.



- A. 16°
- B. 23°
- C. 67°
- D. 74°

16

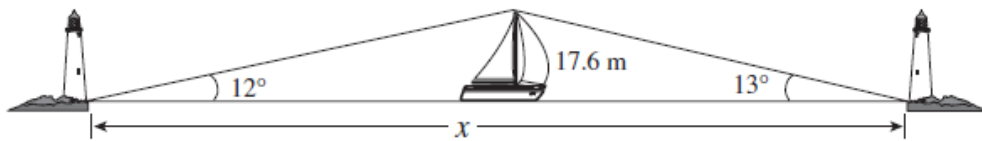
If an ant travelled from A to B to C along the dotted path, how far did it travel?



- A. 23.0 cm
- B. 23.3 cm
- C. 23.9 cm
- D. 33.0 cm

17

Two lighthouses are located on either side of an inlet. A ship 17.6 m tall is directly between the lighthouses. The angles to the top of the ship from each lighthouse are 12° and 13° .

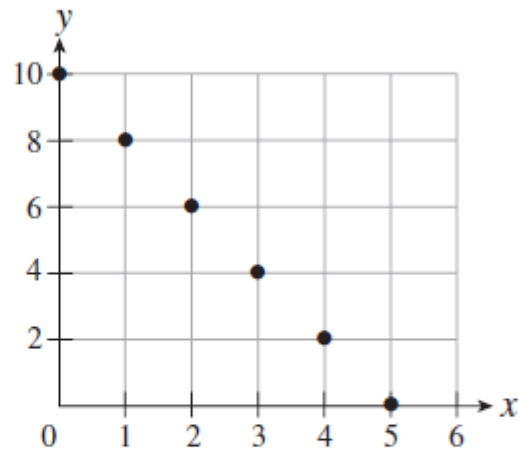


What is the distance, x , between the two lighthouses?

- A. 36.1 m
- B. 159.0 m
- C. 162.9 m
- D. 165.6 m

18

Which of the following statements is true for this graph?



- A. The domain is $\{0, 1, 2, 3, 4, 5\}$.
- B. The range is $\{0, 1, 2, 3, 4, 5\}$.
- C. The domain is all numbers from 0 to 5.
- D. The range is all real numbers.

19

The graph of $y = 4x + k$ has an x -intercept of -20 . Determine the value of k .

- A. -20
- B. -5
- C. 16
- D. 80

20

Consider the graphs of the following lines :

Line A	$2x - 3y - 18 = 0$
Line B	$4x - 6y - 6 = 0$

Which of the following statements is true?

- A. The slopes are the same.
- B. The x -intercepts are the same.
- C. The y -intercepts are the same.
- D. The slopes are different and the x -intercepts are different.

21

Which of the following statements are true about the graph of the function $5y + 40 = 0$?

I.	The slope is zero.
II.	The y -intercept is -8 .
III.	The domain is the set of all real numbers.
IV.	The range is the set of all real numbers.

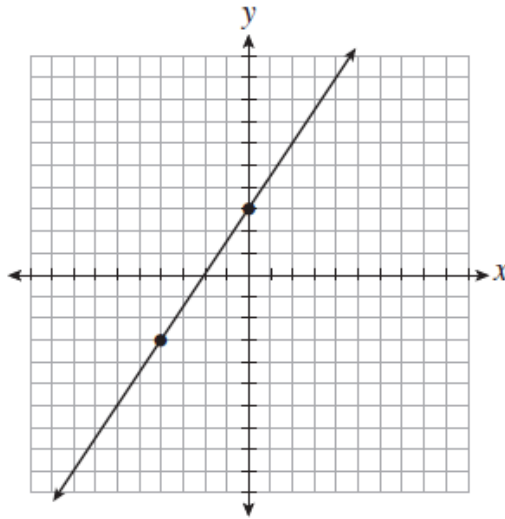
- A. I and III only
- B. I and IV only
- C. II and III only
- D. I, II and III only

22

Given the equation $Ax + By + C = 0$, which of the following must be true for the graph of the line to have a positive slope and a negative y -intercept?

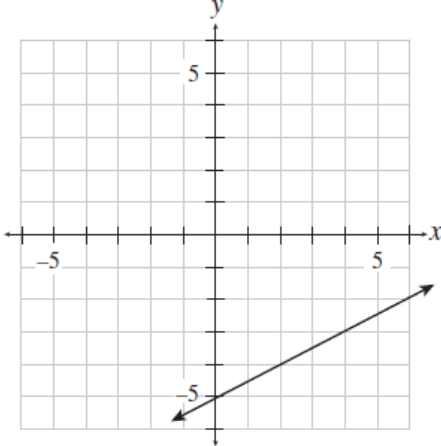
- A. $A > 0, B > 0, C > 0$
- B. $A > 0, B < 0, C < 0$
- C. $A > 0, B < 0, C > 0$
- D. $A > 0, B > 0, C < 0$

What is the equation of the line in the graph below?



- A. $y = \frac{2}{3}x + 3$
- B. $y = \frac{3}{2}x - 2$
- C. $y = \frac{3}{2}x + 3$
- D. $y = -\frac{7}{5}x + 3$

Which of the following relations can be used to represent the same function?

I.	$y = 5 - \frac{1}{2}x$
II.	$\{(-6, -8), (-4, -7), (-2, -6), (0, -5)\}$
III.	One number is 5 less than half the other number.
IV.	

- A. I and III only
- B. II and IV only
- C. I, III and IV only
- D. II, III and IV only

28 Solve the following linear system:

$$\frac{1}{4}x + \frac{1}{10}y = 5$$

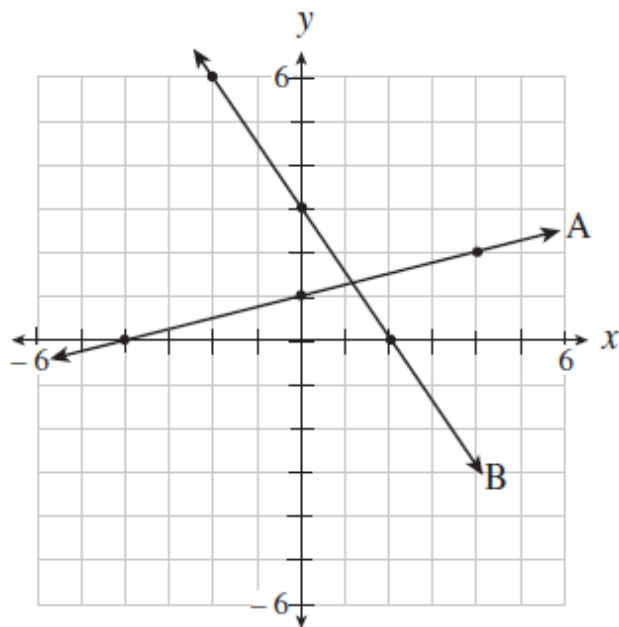
$$\frac{1}{2}x + \frac{1}{5}y = 10$$

- A. (5,10)
- B. (10,25)
- C. Infinite Solutions
- D. No solution

29 A line passes through the points $(-8, 24)$ and $(4a, 9)$. The slope of the line is $-\frac{1}{2}$. Determine the value of a .

- A. $-\frac{29}{2}$
- B. $-\frac{1}{8}$
- C. $\frac{11}{2}$
- D. $\frac{19}{2}$

Which equation represents a line with the same slope as line A and the same y-intercept as line B?



- A. $4x - y + 3 = 0$
- B. $3x + 2y - 2 = 0$
- C. $x - 4y + 12 = 0$
- D. $x + 4y - 12 = 0$

Which equation represents a line that is perpendicular to $2x + 3y - 18 = 0$?

- A. $y = -\frac{3}{2}x + 3$
- B. $y = \frac{3}{2}x + 4$
- C. $y = \frac{2}{3}x - 5$
- D. $y = -\frac{2}{3}x - 6$

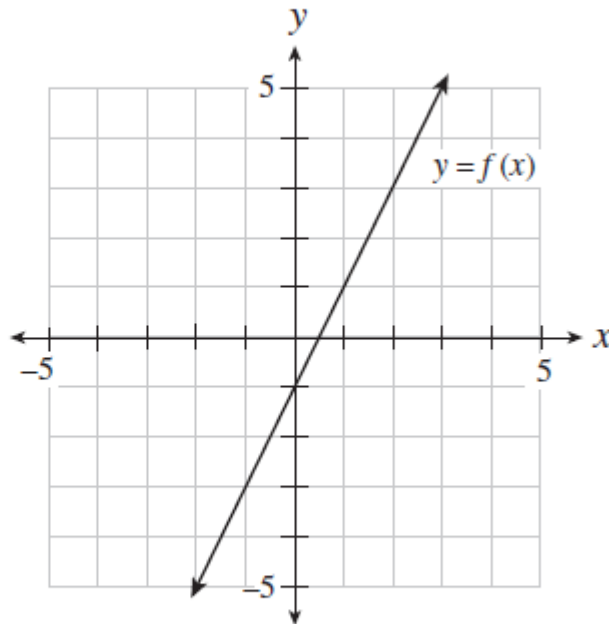
32 Determine the value of A, if the lines $y = 2x + 5$ and $Ax - 3y + 30 = 0$ intersect on the x -axis.

- A. 12
- B. 6
- C. -6
- D. -12

33 Determine an equation of the line passing through the point $(-4, 3)$ and parallel to the line segment joining $A(5, -2)$ and $B(3, 4)$.

- A. $y = 3x + 15$
- B. $y = 3x - 9$
- C. $y = -3x + 15$
- D. $y = -3x - 9$

34 If $f(x) = -1$, determine the value of x .



Record your answer neatly on the Answer Sheet.

35

Determine the value of k :

$$121x^2 - k = (11x + 8)(11x - 8)$$

Record your answer neatly on the Answer Sheet.

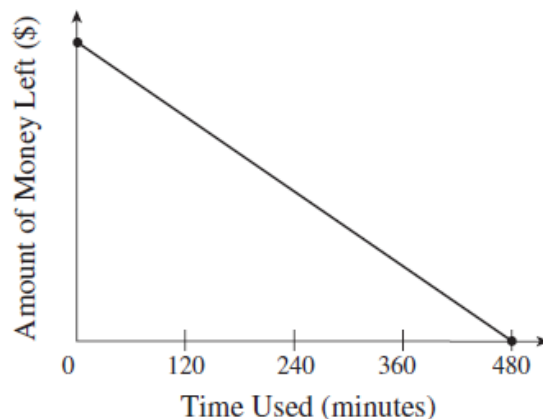
36

The profit, P , in dollars, made from a dance is given by the formula $P(n) = 5n - 800$, where n is the number of students attending the dance. What is $P(190)$?

Answer to the nearest whole number.

Record your answer neatly on the Answer Sheet.

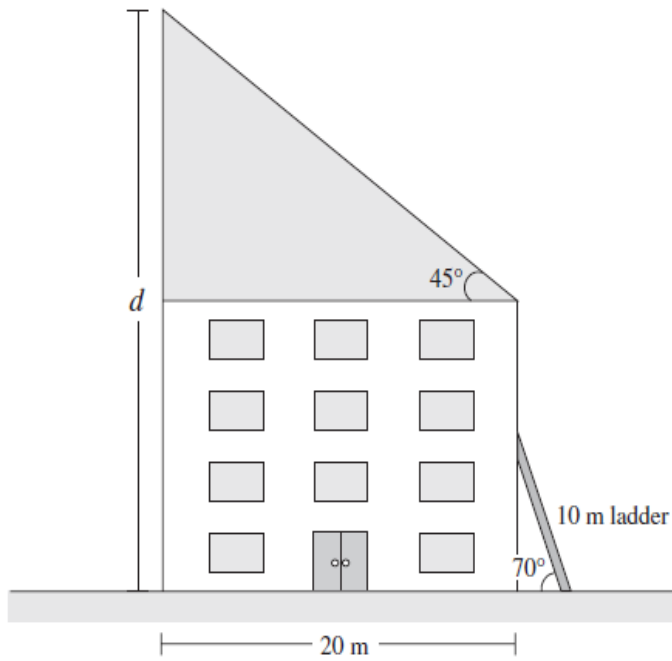
37 The amount of money left in a cell phone account depends on the time used in minutes as shown in the graph below.



If the cost of using the cell phone is \$0.15 per minute, how much money was originally in the cell phone account? Answer in dollars and cents.

Record your answer neatly on the Answer Sheet.

A 10 m ladder reaches halfway up the wall of the building. Using the diagram below, what is the distance, d , from the ground to the highest point on the roof ?



Record your answer neatly on the Answer Sheet.

1	B
2	A
3	A
4	A
5	A
6	C
7	B
8	C
9	D
10	B
11	D
12	B
13	C
14	C
15	D
16	C
17	B
18	A
19	C

20	D
21	A
22	D
23	B
24	B
25	D
26	B
27	C
28	B
29	C
30	C
31	C
32	B
33	A
34	D
35	ZERO -0
36	64
37	VARIES ON PRINTER
38	150
39	72
40	38.79