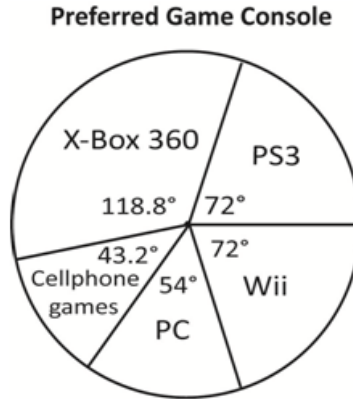


# **Grade 8 Mathematics Assessment**

## **Item Sampler**



1. John surveyed students in his school and recorded their preferences about video game consoles. He constructed the circle graph shown below.



What percentage of students prefer the XBox 360?

A. 60%

B. 118.8%

C. 141.2%

D. 33%

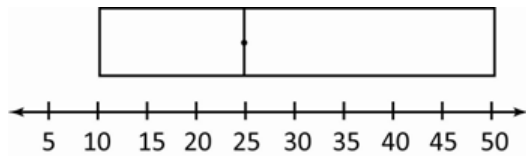
2. Which box-and-whisker plot represents the data in the following stem-and-leaf plot?

Stem (tens)	Leaf (ones)
1	0 3 3 4 7
2	1 1 3 5
3	0 5 8 9 9 9
4	0 2 4 7
5	0

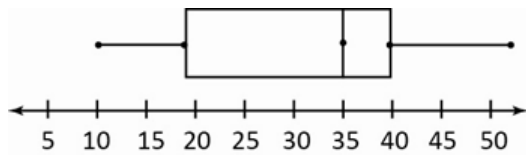
##

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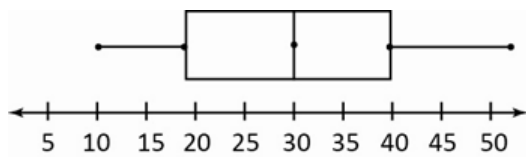
A.



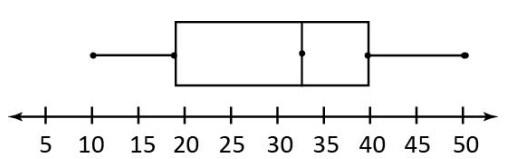
B.



C.



D.

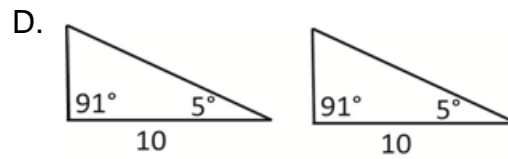
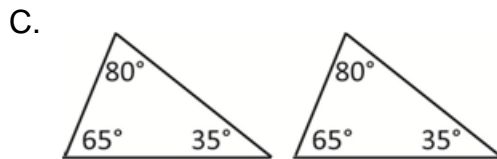
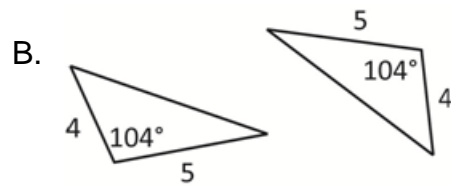
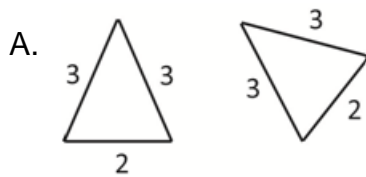


3. On a math test, the mean score was 83 for the 25 students. Johnnie made 43 on this test. He was allowed to write a make-up test and scored 93. The teacher replaced his score of 43 with his new score of 93 and re-calculated the mean score.

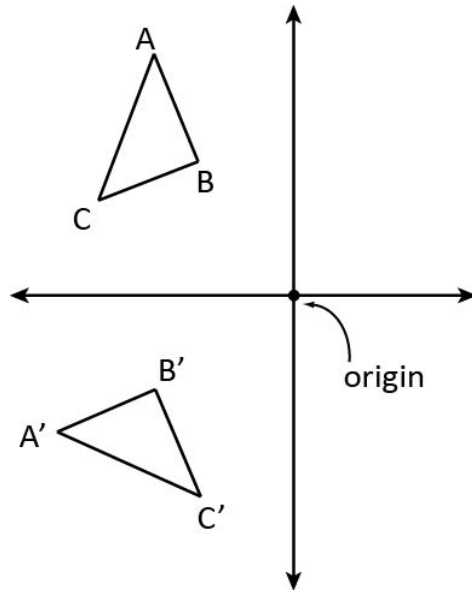
How was the mean affected?

- A. There was no change to the mean.                      B. The mean increased to 83.4.
- C. The mean increased to 85.                                D. The mean increased to 88.

4. Which of the following pairs of triangles are **NOT** necessarily congruent?



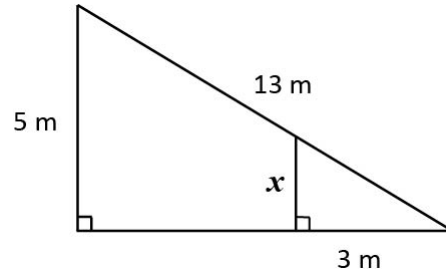
5.  $\triangle ABC$  has been rotated **counter**-clockwise  $90^\circ$  about the origin.



Which are properties of this transformation?

- A. -  $\angle A = \angle A'$   
- same orientation  
- B and B' are the same distance from the rotation centre
- B. -  $\angle A = \angle A'$   
- different orientation  
- B and B' are the same distance from the rotation centre
- C. -  $\angle A = \angle A'$   
- same orientation  
- side AB is parallel to side A'B'
- D. -  $\angle A = \angle A'$   
- different orientation  
- A and A' are the same distance from the mirror line (y axis)

6. What is the length of side  $x$ ?



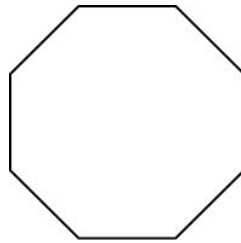
A. 1.25 m

B. 1.67 m

C. 1.00 m

D. 4 m

7. A regular octagon has how many lines of reflectional symmetry?



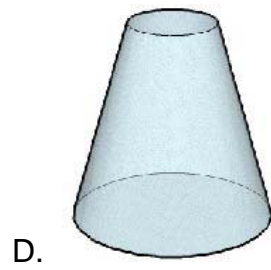
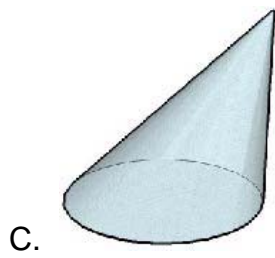
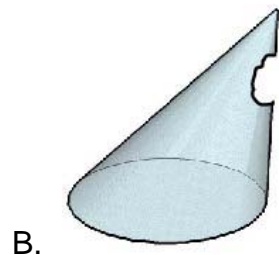
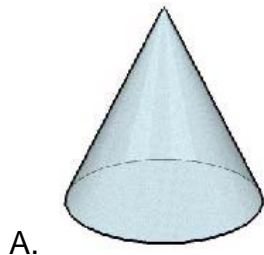
A. 2

B. 4

C. 6

D. 8

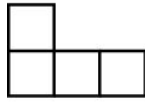
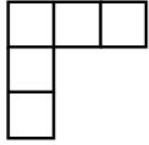
8. Which of the following is an oblique cone?



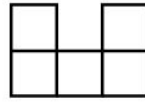


9. Look at the top, front, and right views below.

Top View



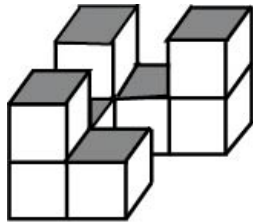
Front View



Right View

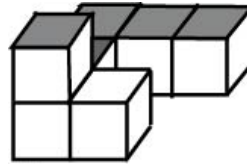
Which isometric drawing represents the views above?

A.



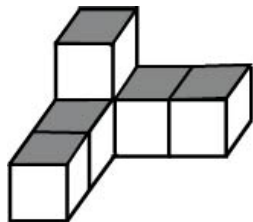
Front

B.



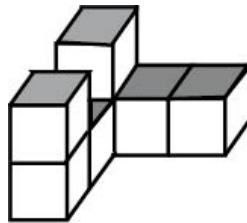
Front

C.



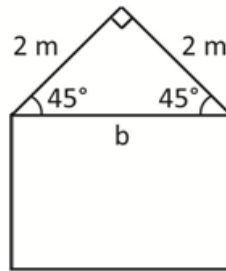
Front

D.



Front

10. Terry is building a small shed for her backyard as shown in the diagram below.



What is the length of **b**?

A. 2

B. 4

C. 8

D. 2.83

11. What is the capacity of a drinking glass in the shape of a cylinder with a radius of 5 cm and a height of 10 cm given that  $1 \text{ cm}^3 = 1 \text{ mL}$ ?

A. 50 mL

B. 392.5 mL

C. 100 mL

D. 785 mL

12. A square piece of paper has an area of  $81 \text{ cm}^2$ .

What is the area of the largest circle that can be drawn on the piece of paper?

A.  $63.59 \text{ cm}^2$

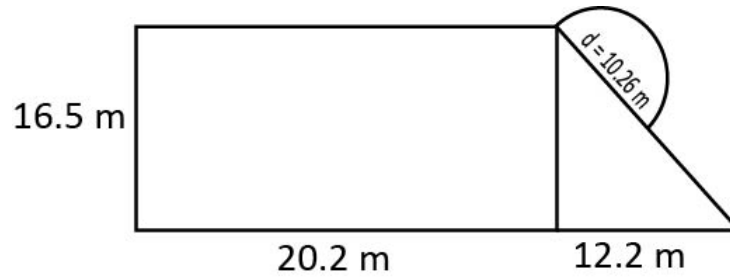
B.  $254.34 \text{ cm}^2$

C.  $28.26 \text{ cm}^2$

D.  $56.52 \text{ cm}^2$

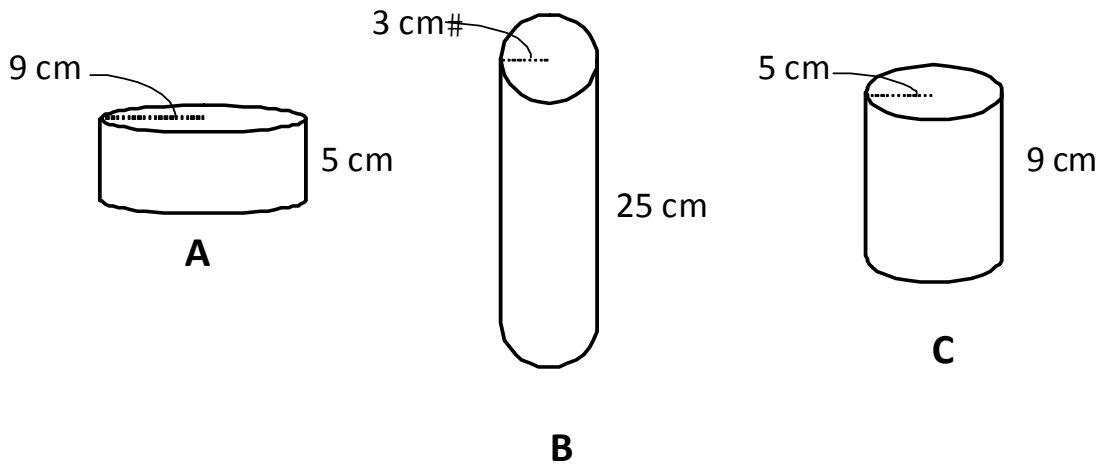
13. The Johnson family is building a new deck in their backyard. It consists of a rectangular shaped upper level, a triangular shaped middle level, and a semicircle patio on the ground level.

What is the total area of the deck?



				.		
0	0	0	0		0	0
1	1	1	1		1	1
2	2	2	2		2	2
3	3	3	3		3	3
4	4	4	4		4	4
5	5	5	5		5	5
6	6	6	6		6	6
7	7	7	7		7	7
8	8	8	8		8	8
9	9	9	9		9	9
.	.	.	.	●	.	.

14. Estimate which containers will hold the same amount of water.



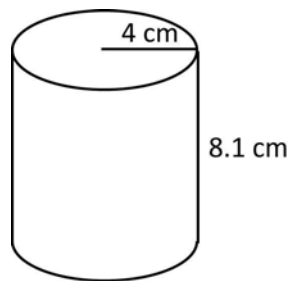
A. containers A & B

B. containers A & C

C. containers B & C

D. containers A, B, & C

15. Look at the cylinder below.



What is the best estimate of the surface area of the cylinder?

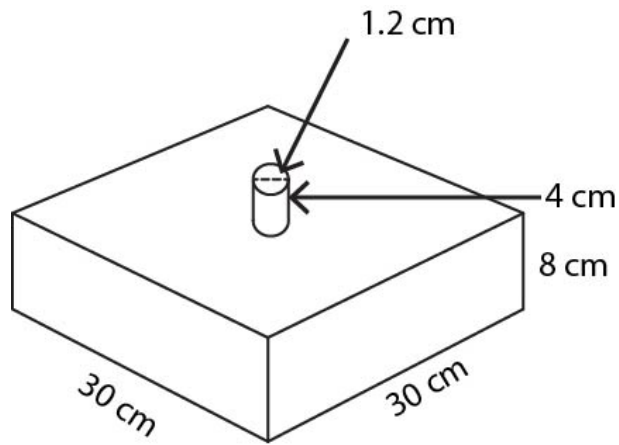
A.  $32 \text{ cm}^2$

B.  $64 \text{ cm}^2$

C.  $300 \text{ cm}^2$

D.  $200 \text{ cm}^2$

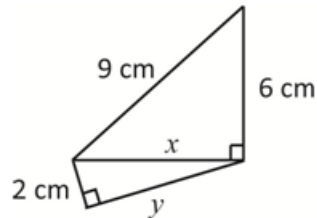
16. Peter wants to paint the object below. (The bottom square of the object will not be painted.)



If 1 container of paint covers  $300 \text{ cm}^2$ , how many containers of paint will Peter need to buy?

- A. 2 cans
- B. 3 cans
- C. 6 cans
- D. 7 cans

17. In the following figure, what is the value of  $y$  rounded to the nearest hundredth?



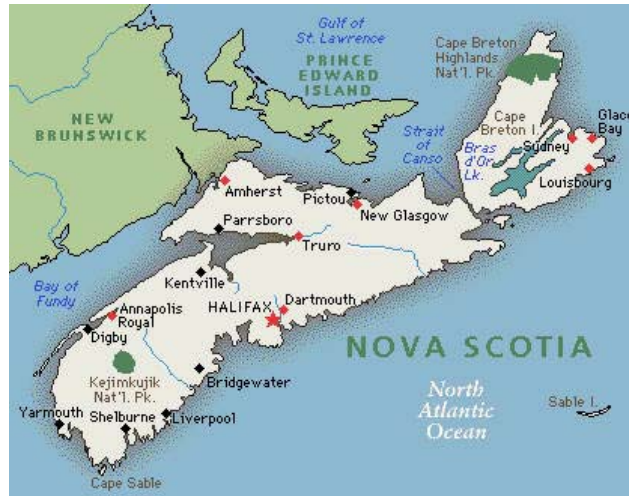
- A.  $y = 1.00 \text{ cm}$
- B.  $y = 11.00 \text{ cm}$
- C.  $y = 6.99 \text{ cm}$
- D.  $y = 6.39 \text{ cm}$

18. What is an equivalent form of  $56 \times 0.9 - 56 \times 0.8$ ?

- A.  $0 \times 0.72$
- B.  $56 \times 0.1$
- C.  $56 \times 0.72$
- D.  $56 \times 1.7$

19. On a map, Mary measures the distance between Truro and Halifax to be 5 cm. She knows the actual distance between Truro and Halifax is 100 km. She then measures the distance between Halifax and Yarmouth on her map and finds it to be 18 cm.

What is the actual distance between Halifax and Yarmouth?



Map not to scale

				.		
0	0	0	0		0	0
1	1	1	1		1	1
2	2	2	2		2	2
3	3	3	3		3	3
4	4	4	4		4	4
5	5	5	5		5	5
6	6	6	6		6	6
7	7	7	7		7	7
8	8	8	8		8	8
9	9	9	9		9	9
.	.	.	.	●	.	.

20. The instructions on a label of powdered drink mix suggest mixing 15 g of powder with 250 mL of water.

How much powder should be mixed with 2 L of water?

A. 60 g

B. 120 g

C. 265 g

D. 1875 g

21. Joe bought a scooter. The total cost, including 15% tax, is \$110.40.

What is the cost of the scooter before tax?

				.		
0	0	0	0		0	0
1	1	1	1		1	1
2	2	2	2		2	2
3	3	3	3		3	3
4	4	4	4		4	4
5	5	5	5		5	5
6	6	6	6		6	6
7	7	7	7		7	7
8	8	8	8		8	8
9	9	9	9		9	9
.	.	.	.	●	.	.

22. In 2010, the enrolment of Central High School was 1864 students. In 2011, the enrolment was 1689. What is the percentage decrease in the enrolment from 2010 to 2011?

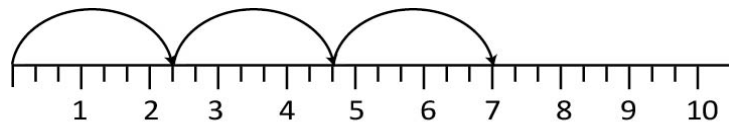
A. 9.7%

B. 9.4%

C. 10.7%

D. 10.4%

23. What product is shown on the following number line?



A.  $3 \times \frac{7}{3}$

B.  $3 \times \frac{1}{7}$

C.  $3 \times 7$

D.  $3 \times 2\frac{1}{2}$

24. Karina had  $\frac{3}{5}$  of a large submarine sandwich. She gave Kendell  $\frac{3}{4}$  of her portion. How much of the large submarine sandwich did Kendell receive?

A.  $\frac{6}{9}$

B.  $\frac{4}{20}$

C.  $\frac{9}{20}$

D.  $\frac{4}{5}$



25. Ethan, Jonas, and Emily bought a pizza. Ethan and Emily would each like to have  $\frac{3}{8}$  of the pizza and Jonas would like to have  $\frac{1}{3}$ .

Is this possible? Explain your reasoning.

26. Ingrid is hosting a pizza party. She ordered 3 extra large pizzas and asked them to be cut into twelfths. Each person ate 2 pieces. At the end of the evening there was half of a pizza left. How many guests attended the party?

A. 36

B. 15

C. 18

D. 72

27. What is the value of  $\frac{3}{4} + \frac{1}{5} \div \frac{1}{2}$ ?

A.  $1\frac{9}{10}$

B.  $1\frac{3}{20}$

C.  $\frac{5}{9}$

D.  $\frac{8}{9}$

28. Parker wanted to raise \$200.00 for his local foodbank. He asked 15 of his neighbours for money. Four of them each gave \$11.50, five of them each gave \$9.25, two of them each gave \$20.00, and four of them each gave \$9.75. How much more money does he need to reach his goal of raising \$200.00?

A. \$171.25

B. \$182.50

C. \$28.75

D. \$29.75

29. Which expression is equivalent to  $3(2-x)$ ?

A.  $6-x$

B.  $5-x$

C.  $6-3x$

D.  $-6x$

30. What is the side length of a square with an area of 64 square units?

A. 8 units

B. 16 units

C. 32 units

D. 128 units

31. Which of the following statements is true?

A. The value of  $\sqrt{56}$  is between 7 and 8.

B. 17 is between the value of  $\sqrt{100}$  and  $\sqrt{144}$ .

C. The value of  $\sqrt{111}$  is between 11 and 12.

D. 15 is between the value of  $\sqrt{25}$  and  $\sqrt{30}$ .

32. What is the value of  $\sqrt{6400}$  ?

A. 800

B. 80

C. 3200

D. 32

33. What is  $10^{-7}$  expressed in standard form?

A. 0.000 000 7

B. 0.000 000 1

C. 0.700 000 0

D. 0.000 000 01

34. Which of the following expresses  $0.075 \times 10^7$  in scientific notation?

A.  $7.5 \times 10^9$

B.  $0.75 \times 10^8$

C.  $0.75 \times 10^6$

D.  $7.5 \times 10^5$

35. Given the following numbers:

$$\frac{3}{4}, -0.72, \frac{7}{10}, 0.73, -\frac{4}{5}$$


Which of the following shows them in increasing order (from least to greatest)?

A.  $-0.72, -\frac{4}{5}, 0.73, \frac{3}{4}, \frac{7}{10}$

B.  $-\frac{4}{5}, -0.72, \frac{3}{4}, \frac{7}{10}, 0.73$

C.  $-\frac{4}{5}, -0.72, \frac{7}{10}, 0.73, \frac{3}{4}$

D.  $\frac{7}{10}, -0.72, 0.73, \frac{3}{4}, -\frac{4}{5}$

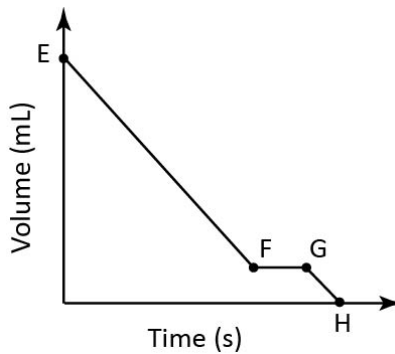
36. If four small squares  represent 100%, how many **small** squares would be required to represent 175%?

- A. 4
- B. 5
- C. 6
- D. 7

37. Given  $5n + 2 = 12$ , what is the value of  $n$ ?

- A. 2
- B. 2.8
- C. 5
- D. 10

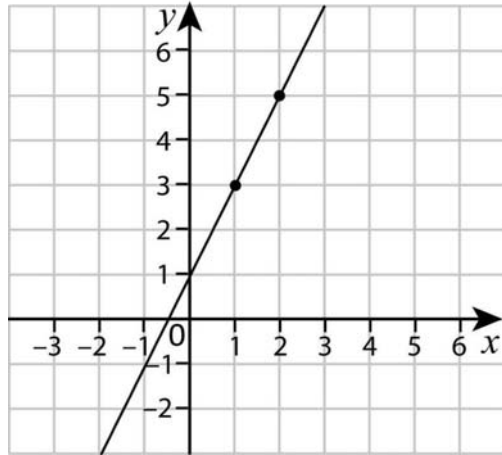
38. The following graph represents the change in volume of a liquid draining from a bottle.



Which option below could explain the horizontal part of the graph between points F and G?

- A. The draining slows down for a short time.
- B. The draining speeds up for a short time.
- C. The liquid is finished draining.
- D. The liquid stops draining for a short time.

39. Which equation represents the following graph?



A.  $y = \frac{x}{2} + 1$

B.  $y = x + 2$

C.  $y = 2x + 1$

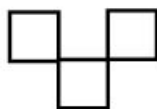
D.  $y = 3x - 1$

40. Look at the following pattern.

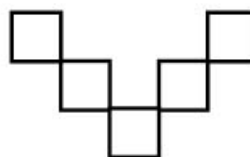
Term 1



Term 2

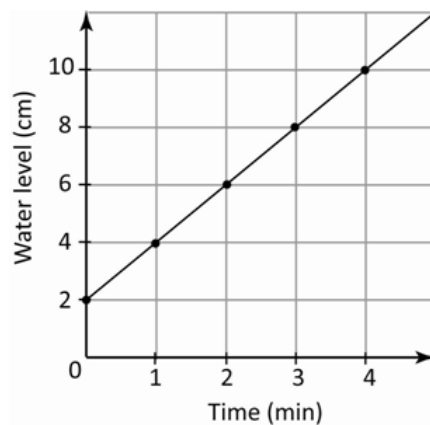


Term 3



- a) Represent the pattern in a table of values that shows the number of squares,  $s$ , for each term,  $t$ .
- b) Write an equation that relates the number of squares,  $s$ , and the term,  $t$ .

41. The graph below shows the relationship between time and water depth in a pail as it fills with water.



At what rate is the pail being filled?

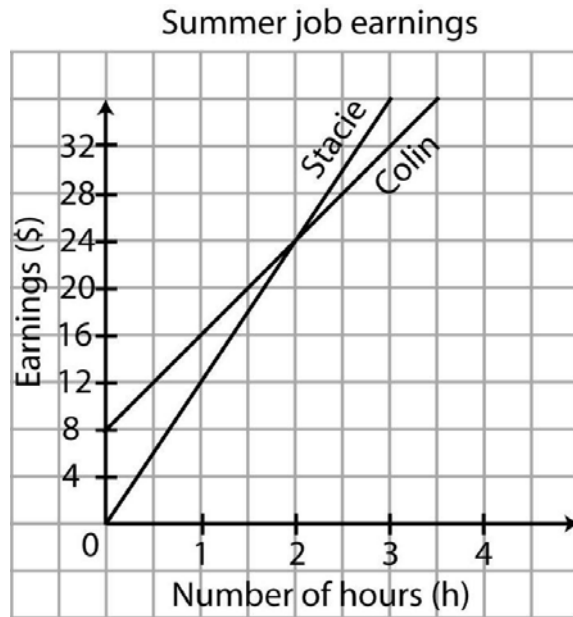
A. 1 cm/min

B. 2 cm/min

C. 8 cm/3 min

D.  $\frac{1}{2}$  cm/min

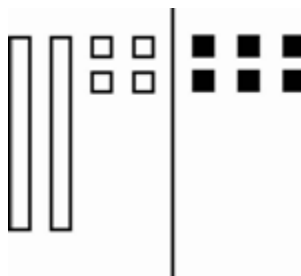
42. Colin and Stacie both work during the summer. Their earnings are represented in the graph below.



How many hours do Stacie and Colin have to work in order to earn the same amount of money?



43. Look at the algebra tiles below.



Which of the following is the equation being modelled?

A.  $2x - 4 = 6$

B.  $-2 - 4x = 6$

C.  $-2x - 4 = 6$

D.  $2x + 4 = 6$

44. A painter charges a flat rate of \$20.00 plus \$15.00 per hour needed to complete a job. If the painter charges \$470.00 for a job, how many hours did the job take?

				.		
0	0	0	0		0	0
1	1	1	1		1	1
2	2	2	2		2	2
3	3	3	3		3	3
4	4	4	4		4	4
5	5	5	5		5	5
6	6	6	6		6	6
7	7	7	7		7	7
8	8	8	8		8	8
9	9	9	9		9	9
.	.	.	.	●	.	.

45. A bag of marbles contains 12 black marbles, 4 blue marbles, 1 red marble, and 8 yellow marbles. What is the probability of drawing a marble that is **neither** black **nor** yellow?

A. 80%

B. 25%

C. 60%

D. 20%

46. In his last 20 times at bat, Terrance hit 8 home runs. Based on his performance, what is the probability that he will hit a home run on his next at bat?

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

B.  $\frac{3}{5}$

C.  $\frac{96}{400}$

D.  $\frac{4}{20}$