1 Triangle BCE is removed from rectangle ABCD shown below.
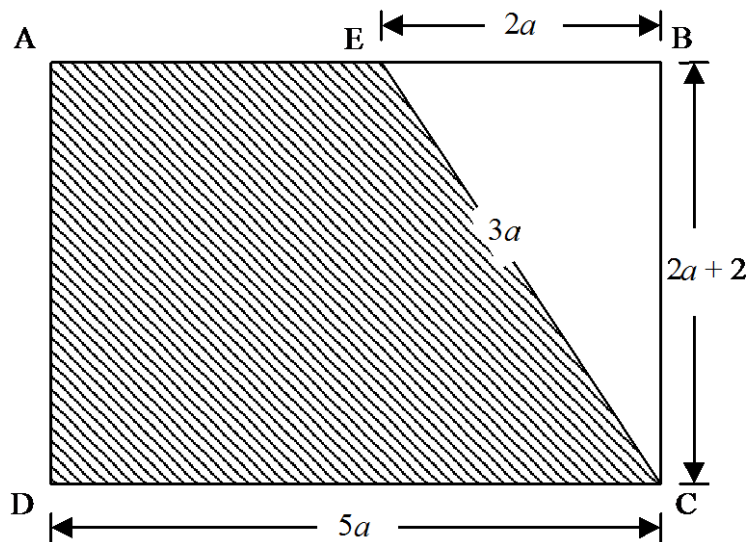

The perimeter of the shaded area measures 46 units.

Side EB of the triangle measures 2a units.

Hypotenuse CE measures 3a units.

Side BC measures (2a + 2) units and side CD, 5a units.

Which of the following equations expresses the perimeter of the shaded figure AECD?

A)   7a + 2 = 46

B)   10a + 2 = 46

C)   12a + 2 = 46

D)   13a + 2 = 46

2 Pierre is in charge of renting sports equipment at an open air camp.

To serve his customers more efficiently, he made charts publicizing the cost of renting the equipment for various lengths of time.

Here is the chart for pedal-boat rentals :

PEDAL-BOAT RENTALS

| TIME	1h00	1h30	2h00	2h30	3h00	3h30	4h00
COST	$5.50	$6.50	$7.50	$8.25	$9.00	$9.50	$10.00

Which of these statements is true?

A)   For each added hour of rental, the cost increase is constant.

B)   Whatever the duration of the rental, the cost for each 30-minute period is the same.

C)   The longer the rental, the less expensive it costs per hour.

D)   The longer the rental, the more expensive it costs per hour.

3 In December, 25 cm of snow fell in one day.

The adjacent graph shows the amount of snow
on the ground at different hours of the day.

Snow
accumulation
(in cm)

25

8 a.m.   12 p.m.   5 p.m.

Hours
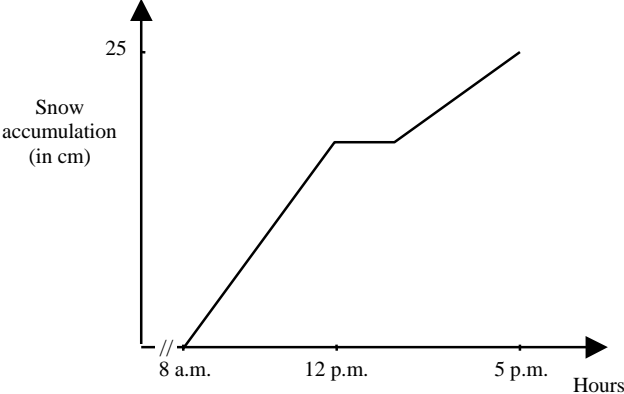
Which of the statements best describes this situation?

A)   It snowed non-stop between 8.00 a.m. and 5.00 p.m.

B)   As much snow fell in the morning as in the afternoon.

C)   Less snow fell in the morning than in the afternoon.

D)   More snow fell in the morning than in the afternoon.

4 | Michael pays $44 for a workbook, a geometry set and a dictionary. The workbook costs 3 times the price of the geometry set, while the dictionary costs 6 times the price of the workbook.

Let x be the price of the geometry set.

Which equation can be used to calculate the price of the geometry set?

A) $x + 3x + 18x = 44$

B) $x + 3x + 6x = 44$

C) $x + \dfrac{x}{3} + 6x = 44$

D) $x + \dfrac{x}{3} + \dfrac{x}{6} = 44$

5 The ages of Sylvia, Mario and Claudia add up to 70. Sylvia's age, diminished by 5, is equal to Mario's age, and Claudia's age is one-half of Mario's.

If x represents Sylvia's age, which of the following equations represents this situation?

A) $x + x + 5 + \dfrac{x + 5}{2} = 70$

B) $x + x - 5 + \dfrac{x - 5}{2} = 70$

C) $x + x - 5 + \dfrac{x}{2} = 70$

D) $x + x + 5 + \dfrac{x}{2} = 70$

6 Mylène, Kim and Judith collect erasers. Together they have 285 samples. Mylène has twice as many erasers as Kim and Judith has 30 fewer than Mylène.

Which equation can be used to calculate the number of erasers x that Kim has in her collection?

A) $x + 2x + (x - 30) = 285$

B) $x + 2x + (2x - 30) = 285$

C) $x + (x + 2) + (x + 2 - 30) = 285$

D) $x + (x - 30) + 2(x - 30) = 285$

7 What is the value of *x* in the following equation?

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

A)   6

C) $1\frac{1}{5}$

B)   5

D) $\frac{1}{2}$

8 Last season, Simon, Max and Justin scored a total of 366 points for their basketball team.

Max scored 25 points fewer than Justin. Simon scored 40 points more than Max.

Which of the following equations could be used to determine the number of points *x* scored by Justin?

A) $x + (x - 40 + 25) + (x + 25) = 366$

B) $x + (x + 40 - 25) + (x - 25) = 366$

C) $x + (x - 40) + (x + 25) = 366$

D) $x + (x + 40) + (x - 25) = 366$

9 During the annual chocolate bar drive, Laird sold 16 more bars than Felicia did whereas Kim sold three times as many as Felicia. Together the three of them sold 216 bars.

If c is the number of bars that Felicia sold, which of the following equations can be used to represent this situation?

A) $c + (c + 16) + (c + 3) = 216$

B) $c + (c - 16) + 3c = 216$

C) $c + (c + 16) + 3c = 216$

D) $c + (c + 16) + 3(c + 16) = 216$

10 What is the solution to the following equation?

$$2(x + 3) - 5 = 17 - 4x$$

A) $\dfrac{17}{6}$

C) $\dfrac{-8}{3}$

B) $\dfrac{8}{3}$

D) $\dfrac{-17}{6}$

11 When Louis spent the day at the Lac Mourier Conservation Area, he rented a sailboard.

The table of values below corresponds to the cost of the rental.

Time (hours)	1	2	3	4	5
Cost ($)	15	20	25	30	35

Which one of the following statements is true?

A)   The base price is $15.

B)   The hourly rate is $15.

C)   The base price is $5 and the hourly rate is $10.

D)   The base price is $10 and the hourly rate is $5.

12 An electronics store entices customers with a draw held during its annual Summer Sale.

Three winners will share a total of $750 in prizes.

The first-place winner will receive three times the amount of the third-place winner. The second-place winner will receive $75 more than the third-place winner.

If x represents the amount won by the third-place winner, which of the following equations represents the situation?

A) $3x = 750$
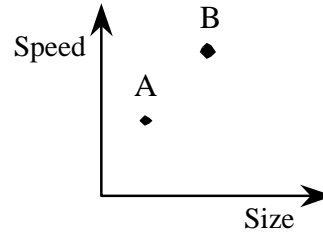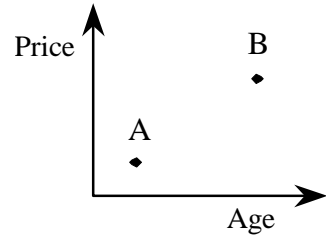
B) $3x + 75 = 750$

C) $3x + x + 75 = 750$

D) $3x + x + 75 + x = 750$

13 The following graphs show the characteristics of two cars, A and B.

One of these graphs represents two variables: age and price.

The other graph represents two variables: size and speed.

According to these graphs, which of the following statements are TRUE?

1. The newer car is faster.

2. The smaller car is cheaper.

3. The bigger car is older.

4. The more expensive car is slower.

A)   1 and 3   C)   2 and 3

B)   1 and 4   D)   2 and 4

14 | In which of the following equations does *x* equal a positive integer?

A) $2x - 1 = -37$ C) $\dfrac{x + 3}{2} = 1$

B) $2x + 5 = -x + 9$ D) $3(x - 5) = 6$

15 | In the equation $x + (x + 1) + (x + 2) - 12 = (x + 3)$, *x* represents the smallest number in a series of 4 consecutive integers.

Which of the following describes this equation?

A)   Given 4 consecutive integers, the sum of the first three integers is 12 less than the fourth integer.

B)   Given 4 consecutive integers, the product of the first three integers is 12 less than the fourth integer.

C)   Given 4 consecutive integers, the sum of the first three integers is 12 more than the fourth integer.

D)   Given 4 consecutive integers, the product of the first three integers is 12 more than the fourth integer.

| 16 | Which statement describes the following equation:

$$x + 7x = 96$$

A)   Julian has 7 times more hens than sheep. In all he has 96 animals.

B)   Julian has 89 hens. If he adds his 7 sheep to this, he has 96 animals.

C)   7 times the sum of the hens and the sheep that Julian has equals 96 animals.

D)   Julian has 7 more hens than sheep. In all he has 96 animals.

| 17 | Michael delivers newspapers on foot. |

This morning he left his home and headed for his first customer, walking at a regular clip. He stopped to deliver the paper, but hearing a dog bark, he quickly took off, running towards his next customer's house. He stopped again to deliver the paper, then walked back to his own house.

Which graph below represents the distance Michael covered in that time?

A)

Distance | Time

C)

Distance | Time

B)

Distance | Time

D)

Distance | Time
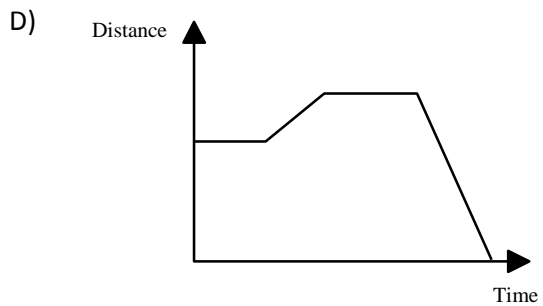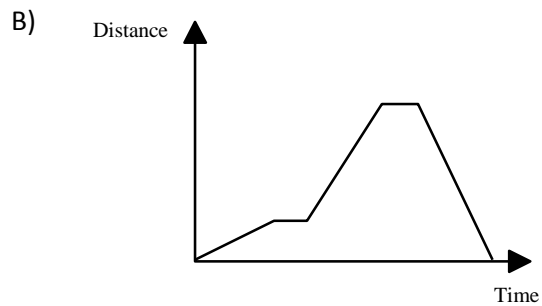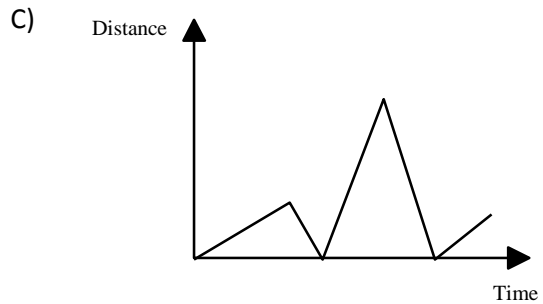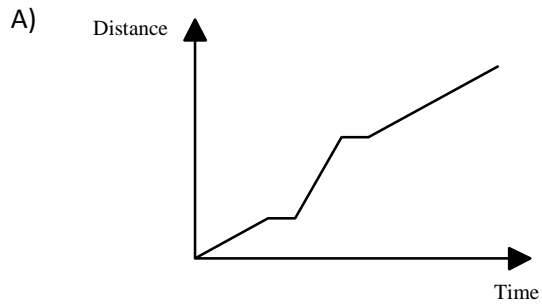
18 Mr. Stevens has won $1000.

He decides to donate the money to UNICEF, the Children's Hospital, and the Cancer Foundation.

- He gives the Children's Hospital twice as much money as he gives to UNICEF.

- He gives the Cancer Foundation $200 more than the amount he gives to the Children's Hospital.

Let x represent the amount that he gives to UNICEF.

Which of the following equations represents this situation?

A) $2x + 200 = 1000$
C) $x + 2x + 2x + 200 = 1000$

B) $x + 2x + 200 = 1000$
D) $x + 2x + 2(x + 200) = 1000$

19 Marco spends 24 hours a week on his favourite activities: piano, television and the Internet.

He spends twice as much time on the Internet as he does watching television. He spends three more hours playing the piano than surfing the Internet.

Given x, the time spent watching television.

Which of the following equations represents this situation?

A) $x + 2x + 3 = 24$

B) $x + 2x + 3(2x) = 24$

C) $x + 2x + 2(3x) = 24$

D) $x + 2x + 2x + 3 = 24$

20 Djamil babysits for several families in his neighbourhood.

He charges $2 for his travel expenses, plus $5 per hour.

Which table of values below represents the relation between the time Djamil spends babysitting and the amount of money he earns?

A)

Time (h)	1	2	3	4
Earnings ($)	7	12	17	22

B)

Time (h)	1	2	3	4
Earnings ($)	5	10	15	20

C)

Time (h)	1	2	3	4
Earnings ($)	3	4	5	6

D)

Time (h)	1	2	3	4
Earnings ($)	7	9	11	13