Released Assessment Questions, 2019

QUESTIONS

Grade 9 Assessment of Mathematics • Academic

Read the instructions below.

Along with this booklet, make sure you have the *Answer Booklet* and the Formula Sheet.

You may use any space in this book for rough work for multiple-choice questions only.

The diagrams in these booklets are **not** all drawn to scale.

ATTENTION:

Unlike in the actual assessment booklet, the questions in this booklet are sorted by strand.

There are more multiple-choice questions in this booklet than in a regular booklet.

Education Quality and Accountability Office

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Continue to read the directions on the cover of the *Answer Booklet.*

Remember to write your answers in your *Answer Booklet*.

1 What is the value of this expression when $x = -5$ and $y = -3$?
$$\frac{2}{3}x^3y^2$$

a -750

b -60

c 60

d 750

2 Cereal comes in two different-sized boxes.

• Box A costs $5.25 for 250 g.

• Box B costs $4.50 for 375 g.

Which box is cheaper per gram, and how much cheaper per gram is it?

a Box B, $0.009 per gram

b Box B, $0.75 per gram

c Box A, $0.033 per gram

d Box A, $35.71 per gram

3 Which of these expressions is equivalent to $(3x - 4y) - (-5x + y)$?

a $8x - 5y$

b $8x - 3y$

c $-2x - 5y$

d $-2x - 3y$

4 Information from linear relationships are shown in three of the tables below.

One table shows information from a non-linear relationship.

Use first differences to determine which option shows information from a non-linear relationship.

a

q	V
1	5
2	7
3	9
4	11

b

q	V
1	9
2	5
3	1
4	−3

c

q	V
1	−3
2	−3
3	−3
4	−3

d

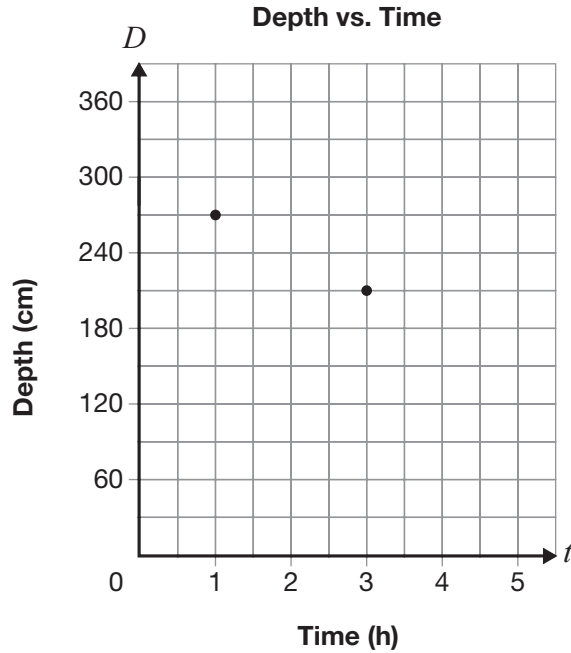| q	V
1	−1
2	2
3	6
4	11

5 A scatter plot with a line of best fit is shown below.
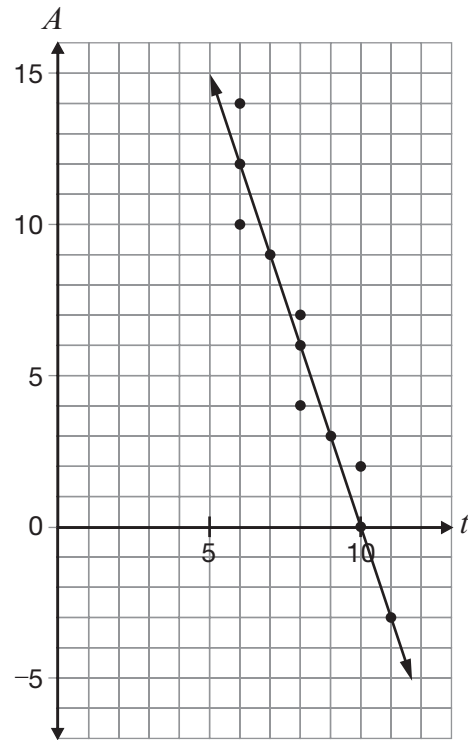
What is the equation of the line of best fit?

a $A = 10 - 3t$
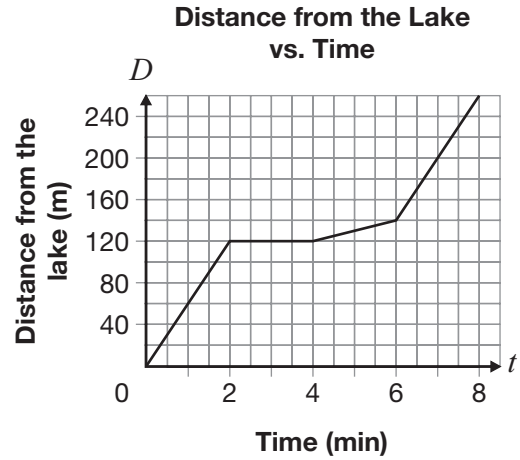
b $A = 30 - 3t$

c $A = 10 + 3t$

d $A = 30 + 3t$

6 Water in a swimming pool is draining at a constant rate. The graph below shows information about the depth of the water at certain times since the draining began.

Depth vs. Time

D

(graph with Depth (cm) on vertical axis marked 60, 120, 180, 240, 300, 360; Time (h) on horizontal axis marked 0, 1, 2, 3, 4, 5; two points plotted at (1, 270) and (3, 210))

Time (h)

How long since the draining began will it take for the water to get to a depth of 90 cm?

a 5 hours

b 6 hours

c 7 hours

d 9 hours

7 The graph shown represents the four segments of Chen's trip home from a lake.

Distance from the Lake vs. Time

D

(graph with Distance from the lake (m) on vertical axis marked 40, 80, 120, 160, 200, 240; Time (min) on horizontal axis marked 0, 2, 4, 6, 8)

Time (min)

Which statement about his trip is true?

a He stopped for a total of 3 minutes.

b He travelled 120 m in the first minute.

c He travelled the fastest between minute 4 and minute 6.

d He travelled the same speed in the first and fourth segments of his trip.

Go to the *Answer Booklet* and complete the six open-response questions before continuing with question 14.
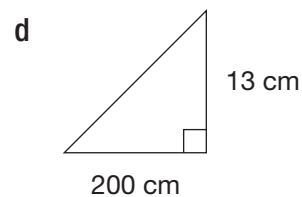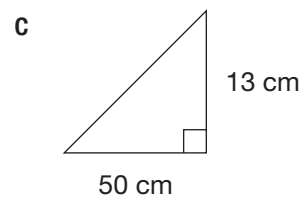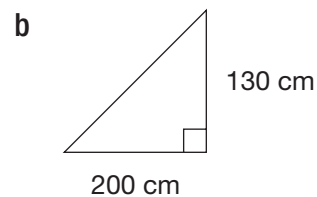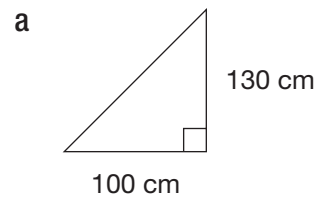
8   Open-Response

9   Open-Response

10   Open-Response

11   Open-Response

12   Open-Response

13   Open-Response

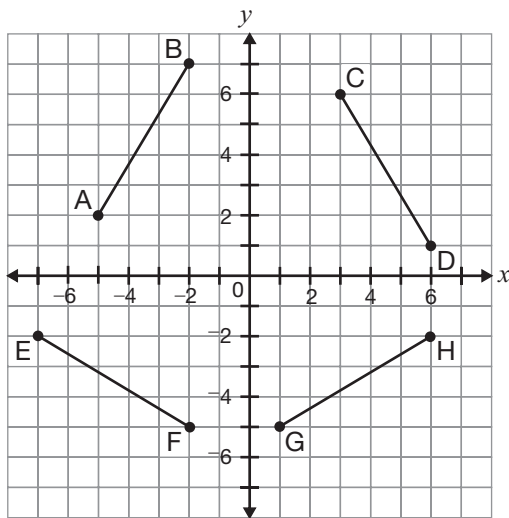**14** Which of the following is **not** an equation of a line?

a $y = -4$

b $y = 9x^2$

c $y = 3x + 6$

d $7x - 2y + 28 = 0$

15 The rise to run ratio of a ramp must be **less** than 0.13.

Which of these ramps meets this requirement?

a

130 cm

100 cm

b

130 cm

200 cm

c

13 cm

50 cm

d

13 cm

200 cm

16 Four line segments are shown on this grid.

Which statement about the line represented by $y = \frac{3}{5}x - 2$ is true?

a It is parallel to line segment AB.

b It is parallel to line segment EF.

c It is perpendicular to line segment CD.

d It is perpendicular to line segment GH.

17 A line on a graph has a rise of -3 for each run of 2, and a y-intercept of -5.

Which of the following is the equation of the line?

a $y = \frac{3}{2}x + 5$

b $y = \frac{2}{3}x + 5$

c $y = -\frac{3}{2}x - 5$

d $y = -\frac{2}{3}x - 5$

18 The total cost of purchasing T-shirts for the math club, C, in dollars, is represented by the equation $C = 20 + 8n$, where n is the number of T-shirts purchased.

The club will order a minimum of 5 T-shirts and a maximum of 10.

What is the range of possible values for the total cost of the T-shirts?

a $40 to $80

b $40 to $100

c $60 to $80

d $60 to $100

19 The rectangular prism pictured has a square base and a volume of 1728 cm³.

h

l
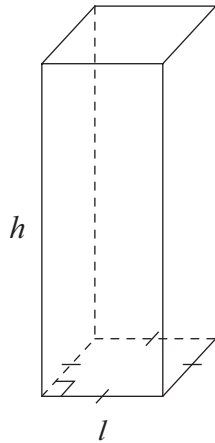
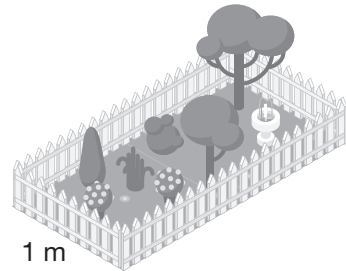Which of these values of h and l produce the prism with the smallest surface area?

a $h = 108$ cm, $l = 4$ cm

b $h = 48$ cm, $l = 6$ cm

c $h = 27$ cm, $l = 8$ cm

d $h = 12$ cm, $l = 12$ cm

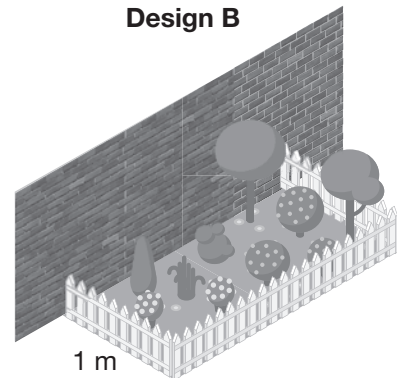**20** Two different designs for fencing a rectangular garden are pictured.

• Design A uses fencing on all 4 sides.

• Design B uses fencing on only 3 sides.

Each design uses 6 m of fencing in total and has a width of 1 m.
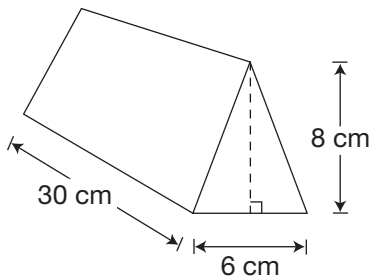
Design A

1 m

Design B

1 m

Which design creates the garden with the largest area, and what is that area?

a Design A, 2 m²
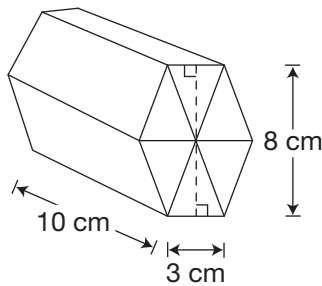
b Design A, 5 m²

c Design B, 4 m²

d Design B, 6 m²

21 Two chocolate bar options are available:

- a large bar in the shape of a triangular prism

- 6 identical small bars that form a hexagonal prism when joined

Both options are pictured.

Option 1: Large Bar

8 cm

30 cm

6 cm

Option 2: 6 Small Bars

8 cm

10 cm

3 cm

Which of the following statements correctly compares the amount of chocolate in the two options?

a The 6 small bars contain the same amount of chocolate as the large bar.

b The 6 small bars contain 6 times the amount of chocolate as the large bar.

c The large bar contains 2 times the amount of chocolate as the 6 small bars.

d The large bar contains 3 times the amount of chocolate as the 6 small bars.

22 A park is surrounded by 4 streets.

95°   115°

Park

80°

x
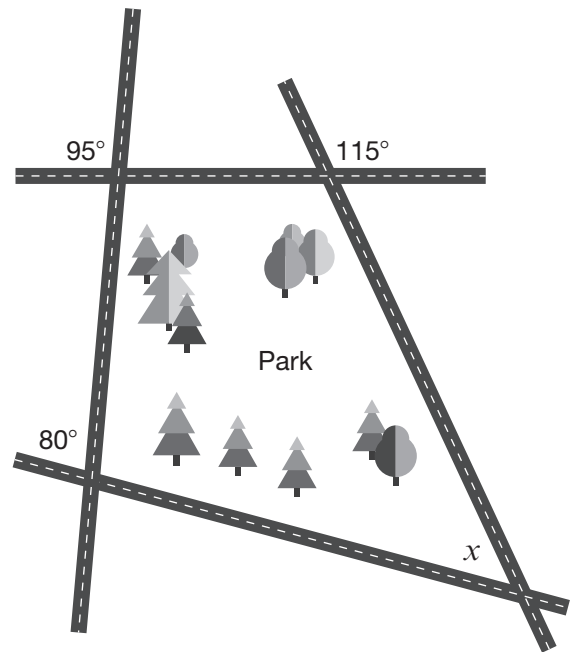
What is the value of x?

a 50°

b 65°

c 70°

d 80°