

Released Assessment Questions, 2016

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.

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

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

- 1** A ball is dropped from a height of 25 m. The ball's height, H , in metres, after n bounces is represented by the equation below.

$$H = 25\left(\frac{1}{2}\right)^n$$

What is the height of the ball after 4 bounces?

a $\frac{25}{16}$ m

b $\frac{25}{8}$ m

c $\frac{25}{4}$ m

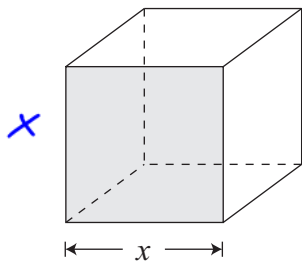
d $\frac{25}{2}$ m

$= 25\left(\frac{1}{2}\right)^4$

$= 25 \times \frac{1^4}{2^4}$

$= 25 \times \frac{1}{16}$
 $= \frac{25}{16}$ m

- 2** A cube with a given side length is pictured below.



Which algebraic expression represents the area of **one face** of the cube?

a $2x$

b $4x$

c x^2

d x^3

$x \cdot x = x^2$

- 3** A school is planning a car wash to raise \$600.

- There will be 8 teams.
- Each team will wash 2 cars per hour.
- The car wash will last $5\frac{1}{2}$ hours. $-30 = 5h \times 2 = 10$
- Each team will take two 15-minute breaks. $= 30 \text{ min}$

How much should the school charge per car to raise exactly \$600?

a \$15.00

b \$7.50

c \$6.82

d \$6.25

let "p" rep price

$600 = 8 \times 10 \times p$

$\frac{600}{80} = p$

$7.5 = p$

- 4** Which of the following is equivalent to

$3(5x - 1) - 2(3x + 5)$?

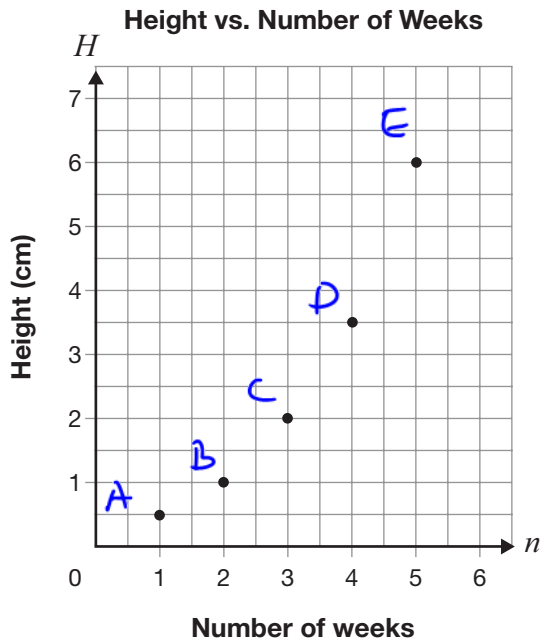
a $9x - 13 = 15x - 3 - 6x - 10$

b $9x + 4 = 9x - 13$

c $21x - 13$

d $21x + 4$

5 Information about the relationship between the height of a plant and time is shown on the grid below.



Which table of values shows only information about this relationship?

A (1, 0.5)
 B (2, 1)
 C (3, 2)
 D (4, 3.5)
 E (5, 6)

a

Number of weeks	Height (cm)
1	2
2	3
6	5

b

Number of weeks	Height (cm)
2	1
3	2
5	6

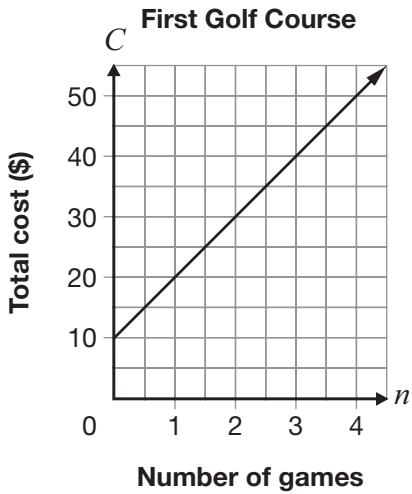
c

Number of weeks	Height (cm)
1	1
2	2
4	7

d

Number of weeks	Height (cm)
2	1
3	2
4	4

6 Two golf courses offer student memberships. Information about the linear relationships between the total cost, C , in dollars, and the number of games played, n , at these two golf courses is given below.



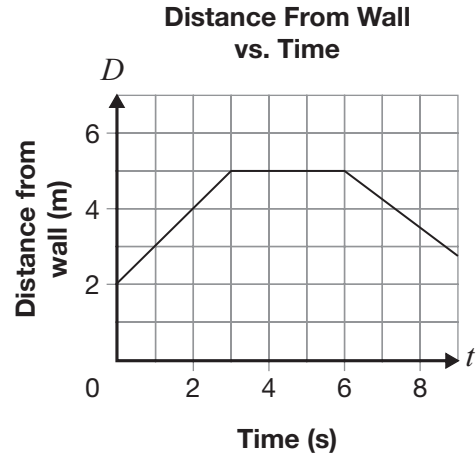
Second Golf Course

Number of games, n	Total cost, C (\$)
3	51
5	85
9	153
12	204

Which of the following statements correctly describes the two relationships?

- ~~a~~ They are both direct variations.
- ~~b~~ The first is a direct variation, and the second is a partial variation with an initial value of \$17.
- c** The first is a partial variation with an initial value of \$10, and the second is a direct variation.
- ~~d~~ The first is a partial variation with an initial value of \$10, and the second is a partial variation with an initial value of \$17.

7 The graph below represents Joe's distance from a wall as he walks.



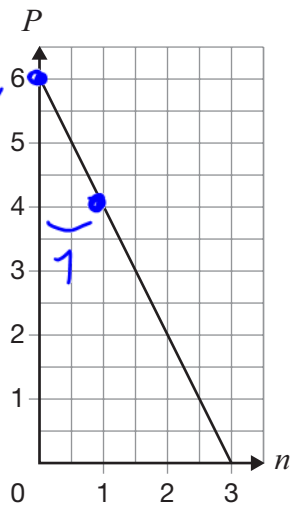
Which statement could describe Joe's walk?

- ~~a~~ Joe walks toward the wall, stands still and then walks away from the wall.
- b** Joe walks away from the wall, stands still and then walks toward the wall.
- ~~c~~ Joe walks toward the wall, stands still and then continues to walk toward the wall.
- ~~d~~ Joe walks away from the wall, stands still and then continues to walk away from the wall.

Handwritten notes: 2 games = 34, 1 game = 17, (1, 17)

Handwritten notes: 2 (3 5 9 12) 34

8 Consider the graph below.



Which of the following is an equation representing this graph?

~~a~~ $P = 2n + 6$

~~b~~ $P = \frac{1}{2}n + 6$

c $P = -2n + 6$

d $P = -\frac{1}{2}n + 6$



Go to the *Answer Booklet* and complete the six open-response questions before continuing with question 15.

9 Open-Response

10 Open-Response

11 Open-Response

12 Open-Response

13 Open-Response

14 Open-Response

15 Information about four different linear relationships between C and n is shown below.

$\frac{40}{8} = 5$

n	C
0	50
8	90
16	130

n	C
10	30
12	35
14	40

How many of the linear relationships have a rate of change of 5?

a 4

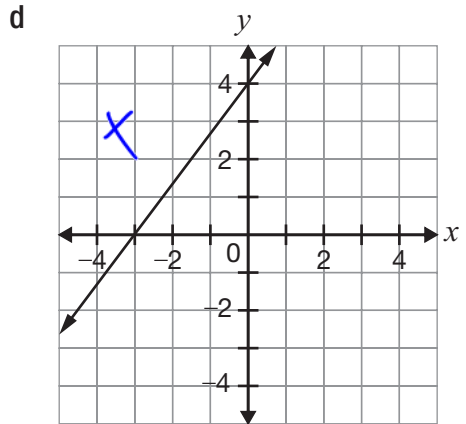
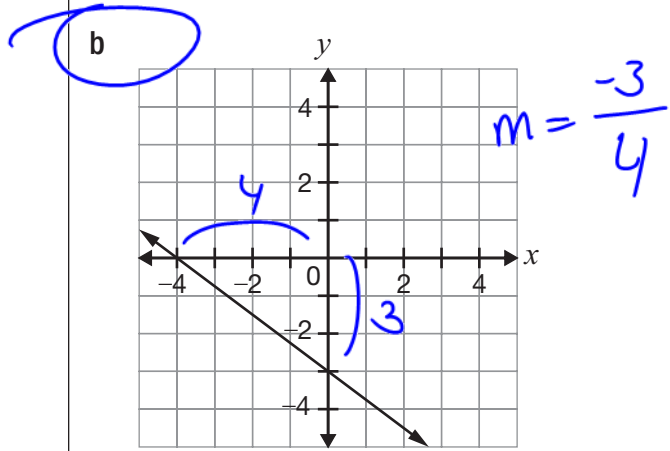
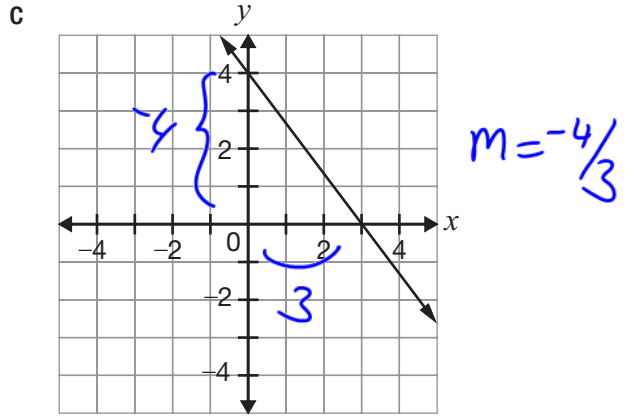
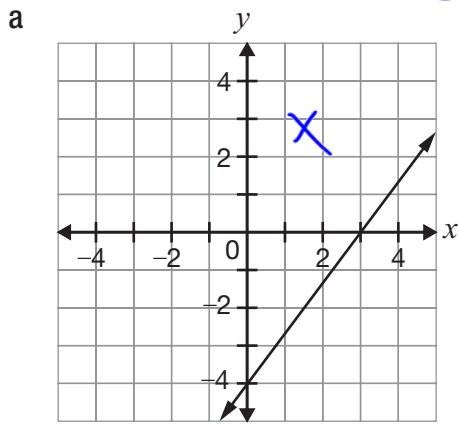
b 3

c 2

d 1

16 Which graph shows a line that is perpendicular to the line $y = \frac{4}{3}x - 4$?

slope = $-\frac{3}{4}$



- 17** What is an equation of the line
- perpendicular to the line represented by $y = -\frac{3}{2}x + 1$ and
 - with the same y -intercept as the line represented by $y = 7 + 5x$?

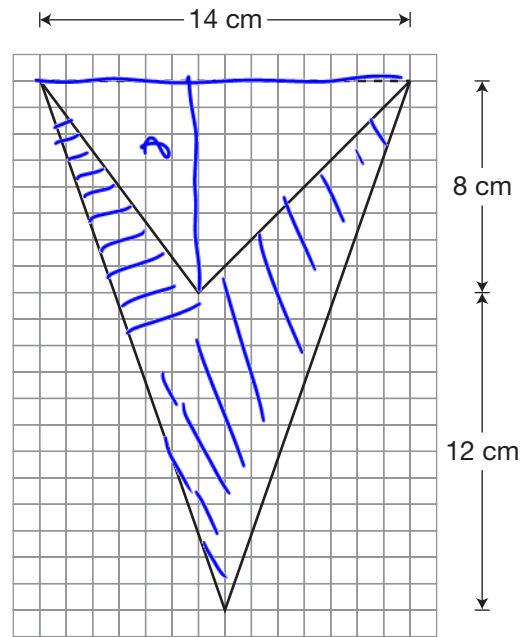
- a** $y = \frac{2}{3}x + 7$ $m = \frac{2}{3}$
b $y = \frac{2}{3}x + 5$ $b = 7$
~~**c** $y = -\frac{2}{3}x + 7$~~
~~**d** $y = -\frac{2}{3}x + 5$~~

- 18** The total cost to repair a fridge, C , in dollars, can be represented by the equation $C = 60t + 30$, where t is the repair time in hours.

Which of the following statements is true about this relationship?

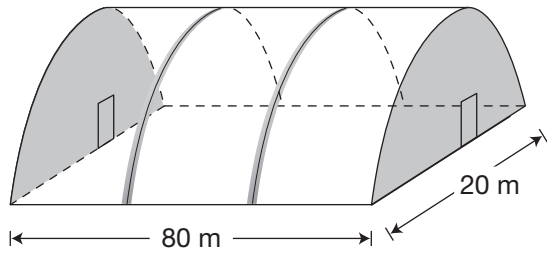
- ~~**a** The hourly rate is \$90. X~~
~~**b** The fixed fee is \$90.~~
c The hourly rate is \$60, and the fixed fee is \$30.
d The hourly rate is \$30, and the fixed fee is \$60.

- 19** What is the area of the shape represented below?



- a** 28 cm^2
b 56 cm^2
c 84 cm^2
d 168 cm^2
- Handwritten calculations:
 $\Delta_{big} = \frac{20 \times 14}{2} = 140$
 $\Delta_{small} = \frac{8 \times 14}{2} = 56$

20 This diagram shows a greenhouse that is built in the shape of a half-cylinder.

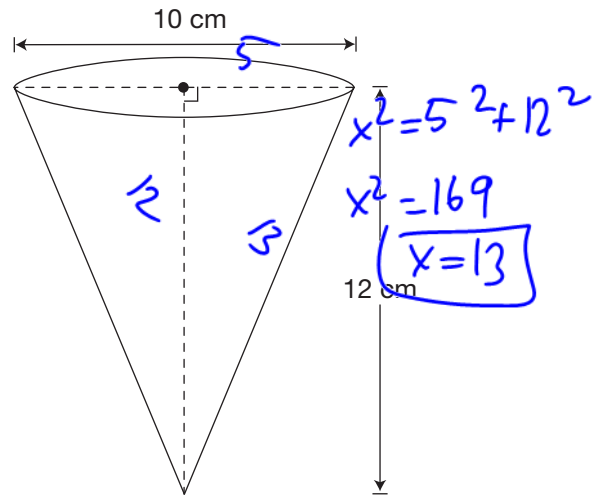


Material to cover the roof costs \$3/m². The shaded ends will not be covered. Which is closest to the cost of covering the roof?

- a \$7540
- b \$12 570
- c \$15 080
- d \$37 700

\bigcirc $\pi r \leftarrow$ half circle
 $80 \times \pi r \times 3$

21 A cone is pictured below.



Hint:

Use Pythagorean theorem as part of your process.

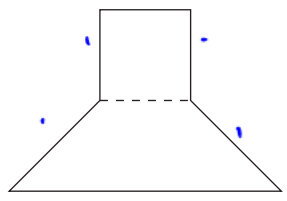
Which of the following is closest to the surface area of the cone?

- a 267 cm²
- b 283 cm²
- c 691 cm²
- d 723 cm²

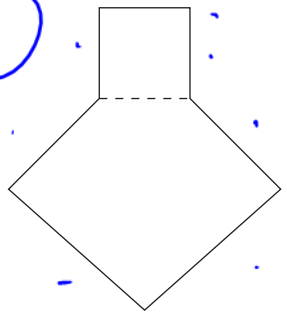
$\pi r s + \pi r^2$
 $\pi \cdot 5 \cdot 13 + \pi \cdot 5^2$
 $= 282.7$

22 Which of the following composite shapes has 900° as the sum of its interior angles?

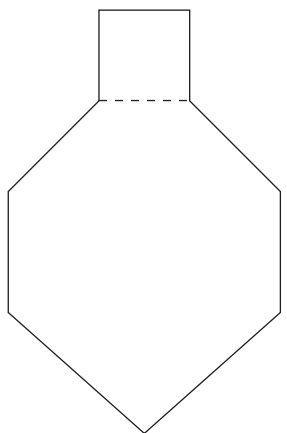
a



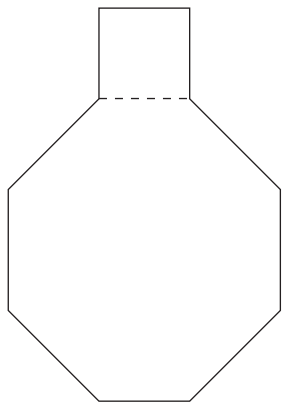
b



c



d



$$\frac{900}{180} = \frac{(n-2) \times 180}{180}$$

$$5 = n - 2$$

$$7 = n$$