

Academic

Grade 9 Assessment of Mathematics

Spring 2008

SAMPLE ASSESSMENT QUESTIONS

**Record your answers to the multiple-choice questions
on the blank Student Answer Sheet (Spring 2008, Academic).**

Education Quality and
Accountability Office



Please note: The format of these booklets is slightly different from that used for the assessment. The items themselves remain the same.

1 The expression below can be simplified.

$$\frac{(x^2y)^3}{(xy)^2}$$

Which of the following shows the expression in its simplest form?

- a x^4y
- b x^4
- c xy
- d x^3y

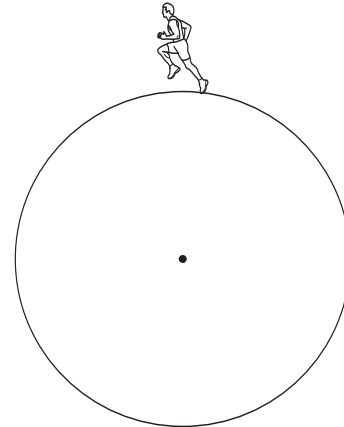
2 Josie works in a sports store. She receives 8% of the total sales each day. One day, she receives \$35 for her portion of the total sales. What are the total sales for that day?

- a \$37.80
- b \$43.75
- c \$280.00
- d \$437.50

3 Which of the following represents the expression $2(3x + 4) + 3(x - 1)$ in a simplified form?

- a $9x + 3$
- b $9x + 5$
- c $8x + 8$
- d $8x + 11$

4 The distance covered in 5 laps of a circular track is 400π metres.

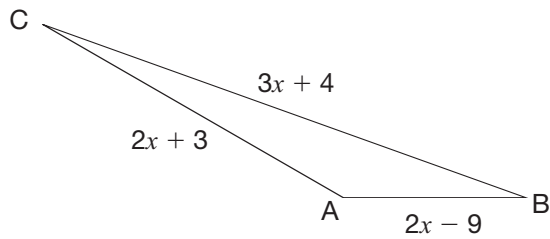


What is the shortest distance between any point on the track and the centre?

- a 400 m
- b 200 m
- c 80 m
- d 40 m

5 What Side?

The perimeter of the triangle below is 75 m.

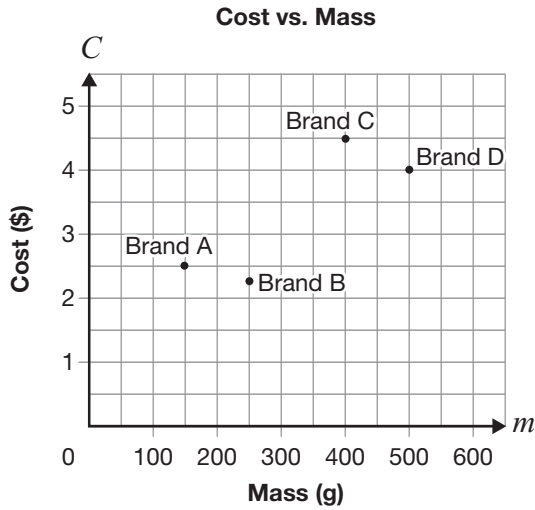


Determine the measure of each side of the triangle.

Show your work.



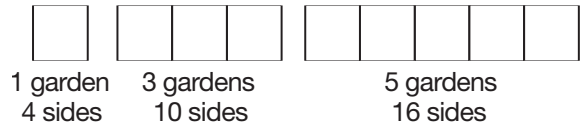
- 6** The following graph shows the relationship between the mass and the cost of four different brands of strawberry jam.



Which statement is true?

- a Brand A has the lowest cost.
- b Brand B has the smallest mass.
- c Brand C has the highest cost per gram.
- d Brand D has the lowest cost per gram.

- 7** Square gardens are arranged side by side as shown below.



Which table of values represents the relationship between the number of gardens and the number of sides?

a

Number of gardens	Number of sides
1	4
2	8
3	12
4	16
5	20

b

Number of gardens	Number of sides
1	4
2	5
3	10
4	11
5	16



c

Number of gardens	Number of sides
1	4
2	6
3	10
4	14
5	16

d

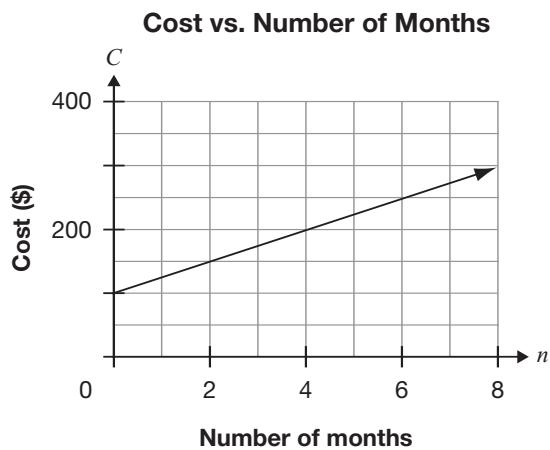
Number of gardens	Number of sides
1	4
2	7
3	10
4	13
5	16

- 8** Gerry has a table of values representing a linear relation. Two of the numbers are hidden behind a ketchup spill.

x	y
-2	-6
-1	
0	
1	18

The values that are hidden are

- a -2 and 14.
 - b 0 and 12.
 - c 2 and 10.
 - d 3 and 9.
- 9** The graph below represents the cost to belong to a local gym.



Which equation represents the graph?

- a $C = \frac{1}{25}n + 100$
- b $C = \frac{1}{2}n + 100$
- c $C = 2n + 100$
- d $C = 25n + 100$



10 Wing Length

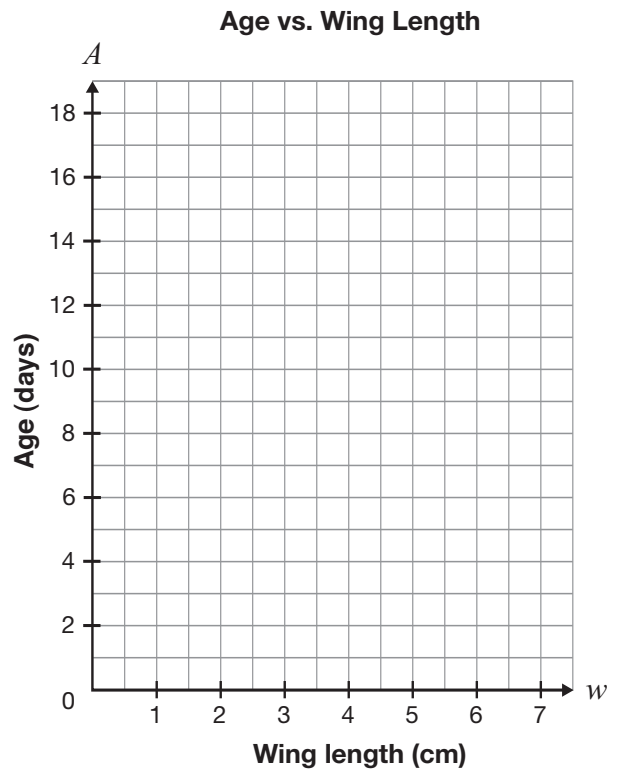
Wing length is a reliable method for determining the age of young birds. Below is an example of data for a particular species.

Wing length (cm)	Age (days)
1.5	4
3.1	8
3.2	10
4.1	12
5.2	16

Determine the age of a bird with a wing length of 3.6 cm.

You may use the grid if you wish.

Justify your answer.



- 11** The table below shows examples of linear and non-linear equations.

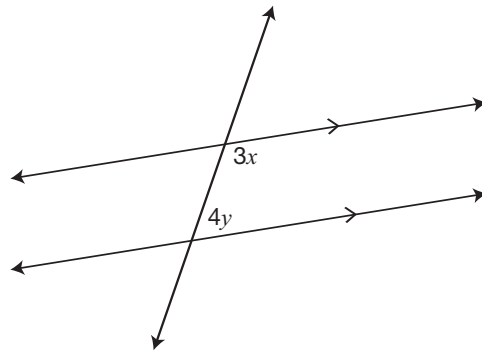
Equation Examples

Linear equations	Non-linear equations
$y = 5x - 3$	$y = 5x^2 - 3$
$y = 125 - 4.25x$	$y = 2x^3$
$y = -3x$	$2x^2 + 5y^2 = 10$

Which of these statements best describes how linear equations are different from non-linear equations in the table above?

- a** The exponent of both variables in the linear equations is 1.
- b** The exponent of exactly one variable in the linear equations is 1.
- c** The exponent of both variables in the non-linear equations is 1.
- d** The exponent of exactly one variable in the non-linear equations is 1.

- 12** The relation shown below can be expressed as $3x + 4y - 180 = 0$.



Another way to write this relation is

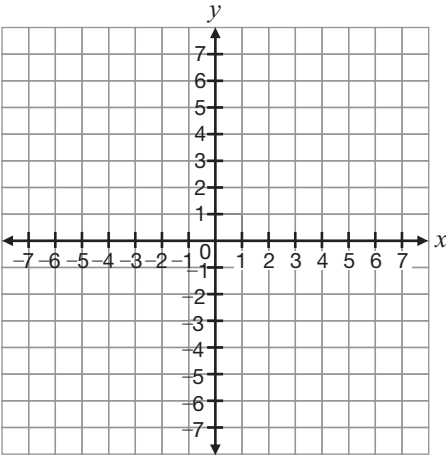
- a** $y = \frac{3}{4}x - 45$.
- b** $y = -\frac{3}{4}x + 45$.
- c** $y = -\frac{4}{3}x + 60$.
- d** $y = \frac{4}{3}x - 60$.

- 13** How would the graph of the relation $y = 3x - 2$ change if the 3 and -2 were both doubled?

The graph would be

- a** steeper and have a lower y -intercept.
- b** steeper and have a higher y -intercept.
- c** less steep and have a lower y -intercept.
- d** less steep and have a higher y -intercept.

- 14** Consider the points A(1, 4), B(6, 3), C(-1, 5), D(-3, 0) and E(2, -1).



Which line segment is parallel to AB?

- a AE
 - b BE
 - c CE
 - d DE
- 15** Identical bottles are packed in a box. The box will hold a maximum of 38 bottles. The relationship between M , the total mass of the box and its contents, and n , the number of bottles in the box, is represented by the equation $M = 500n + 800$.
- Which of the following are possible integer values for the variable n ?
- a n is greater than 37.
 - b n is greater than or equal to 0.
 - c n is greater than 0 but less than 39.
 - d n is greater than or equal to 0 but less than 39.



16 Excellent Equations

A line is perpendicular to the line $y = 2x + 3$ and has the same **x-intercept** as $x + 3y + 10 = 0$.

Find the equation of this line. Express your answer in the form $y = mx + b$.

Justify your answer.

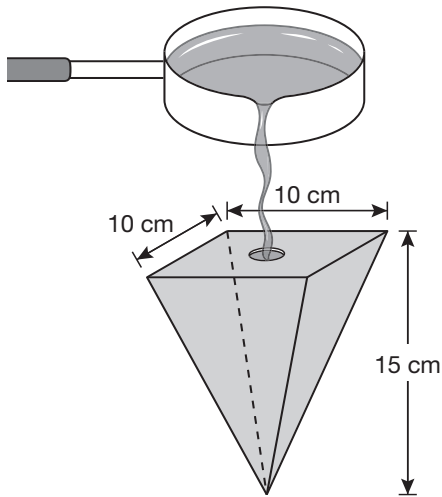


17 Maria grows several varieties of plants in a rectangular-shaped garden. She uses fencing to divide the garden into 16 squares that are each 1 m by 1 m. She also puts fencing around the perimeter of the garden.

Which of the following represents the smallest amount of fencing that Maria needs?

- a 24 m
- b 40 m
- c 42 m
- d 49 m

18 The mould shown below is used to make a candle in the shape of a square-based pyramid.



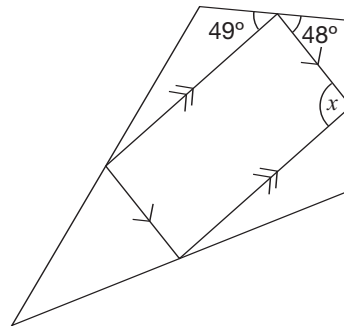
What is the volume of the mould?

- a 1500 cm^3
- b 500 cm^3
- c 400 cm^3
- d 35 cm^3

19 If the radius of a sphere is tripled, the surface area of the sphere will increase

- a by a factor of 3.
- b by a factor of 4.
- c by a factor of 6.
- d by a factor of 9.

20 A parallelogram is inscribed in a quadrilateral as shown.

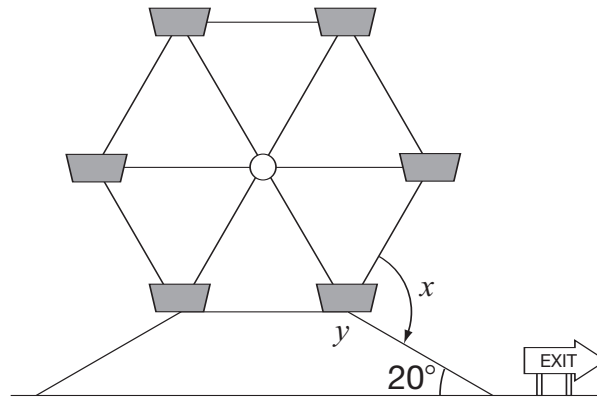


What is the value of x ?

- a 48°
- b 49°
- c 83°
- d 97°

21 **Wheels of Fun**

A Ferris wheel has six sides of equal length. The exit ramp of the Ferris wheel is in the shape of a trapezoid and has an angle of incline of 20° .



What are the values of x and y ?

Use geometric properties to justify your answer.

Sample Assessment Questions: Academic

Answer Key

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. Respond in booklet.

6. a b c d
7. a b c d
8. a b c d
9. a b c d
10. Respond in booklet.

11. a b c d
12. a b c d
13. a b c d
14. a b c d
15. a b c d
16. Respond in booklet.

17. a b c d
18. a b c d
19. a b c d
20. a b c d
21. Respond in booklet.

End of Assessment