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

EQAO

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?

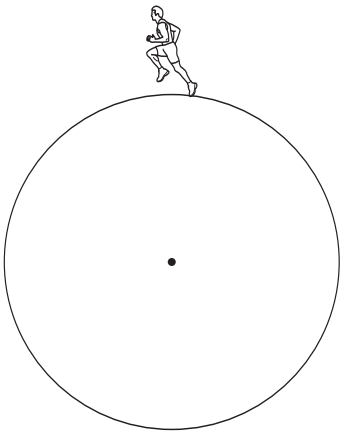
a $9x + 3$

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

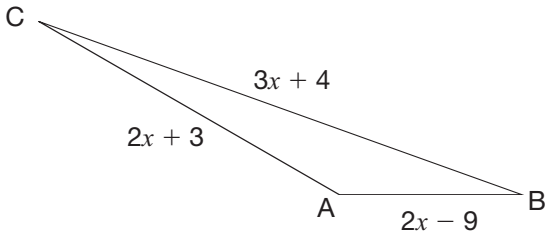
b 200 m

c 80 m

d 40 m

5 What Side?

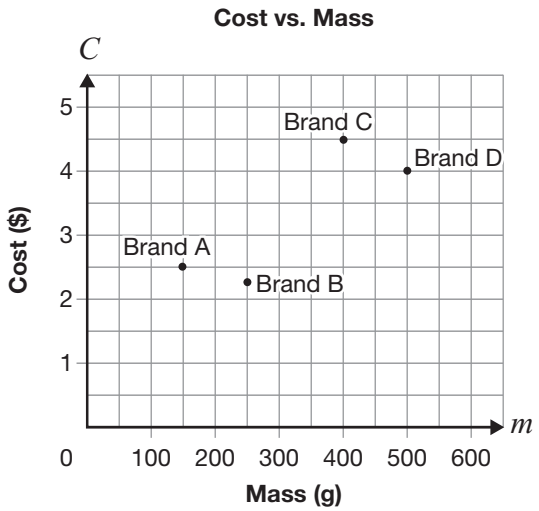
The perimeter of the triangle below is 75 m.



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?

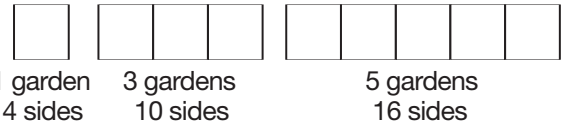
a Brand A has the lowest cost.

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

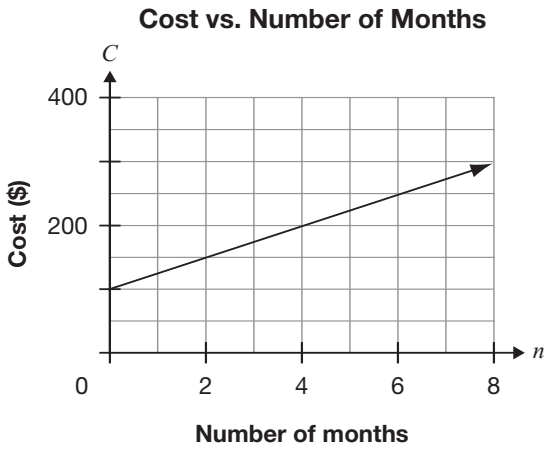
a −2 and 14.

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

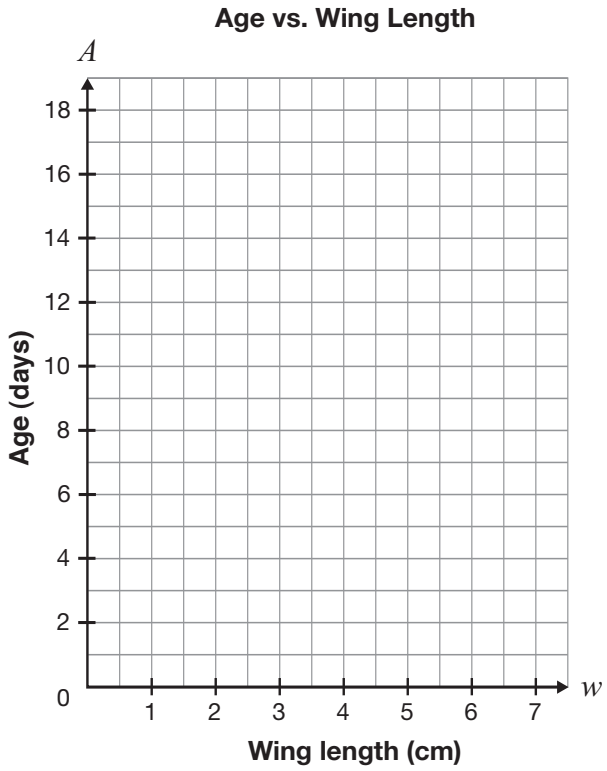
Wing length is a reliable method for determining the age of young birds. Below is an example of data for a particular species.

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?

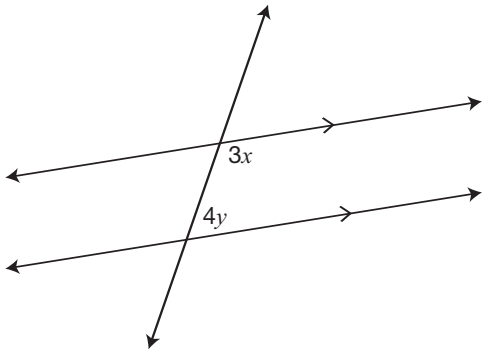
a The exponent of both variables in the linear equations is 1.

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

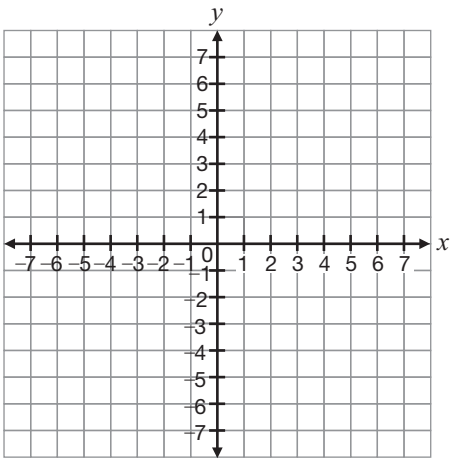
a steeper and have a lower y-intercept.

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?

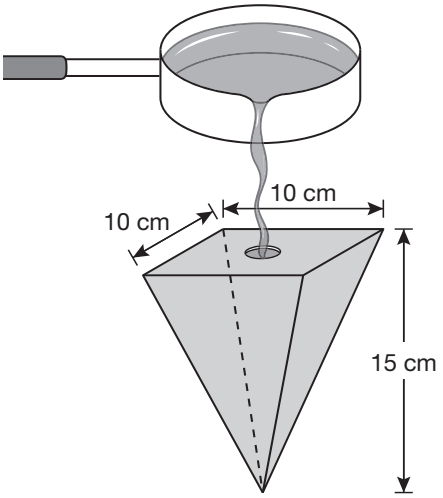
a 24 m

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

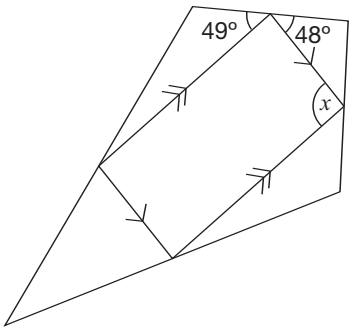
a by a factor of 3.

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°

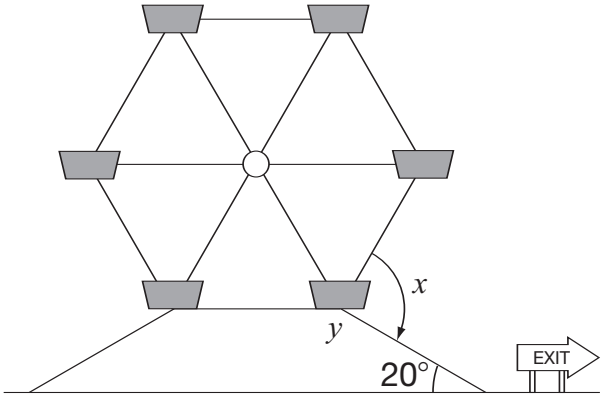
b 49°

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.

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