Academic

Grade 9 Assessment of Mathematics

Winter 2008

SAMPLE ASSESSMENT QUESTIONS

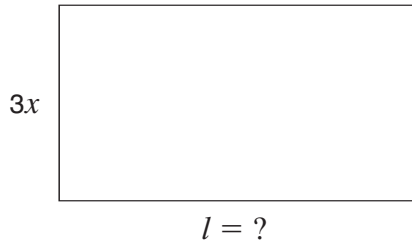**Record your answers to the multiple-choice questions on the blank Student Answer Sheet (Winter 2008, Academic).**

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

1 The area of the rectangle shown below is $6xy^2$ square units.

$3x$

$l = ?$

Hint: $A = lw$

If the width is $3x$ units, which expression represents the length of the rectangle?

a $2xy^2$ units

b $2y^2$ units

c $3xy^2$ units

d $3y^2$ units

2 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

3 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

4 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 $8x + 11$

5　Competing Sales

Sam is interested in buying a TV. At Fair Deal, the TV is regularly priced at $599.99 and is on sale for 20% off the regular price. At Big Big Discount, the same TV is regularly priced at $899.99 and is on sale for 30% off the regular price.
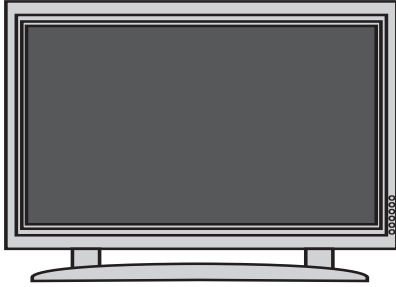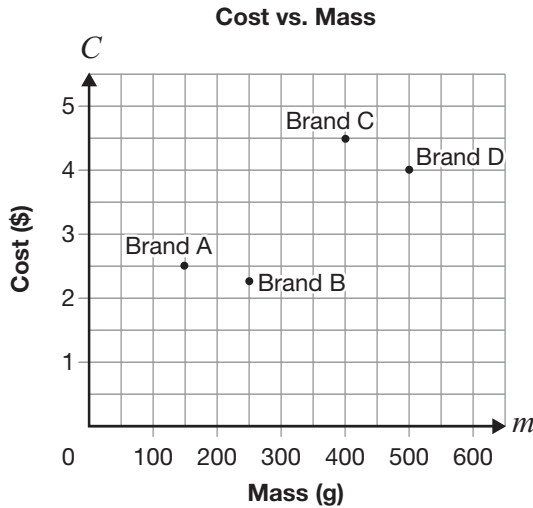
What is the difference in the sale price of the TV between these two stores?

Show your work.

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

Cost vs. Mass

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 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.

**8** Nadia lives 11.4 km from school and rides her bike to school every day.

The equation $d = 11.4 - 0.6t$ represents the relationship between d, her distance from school in km, and t, her time spent travelling in minutes.

If she leaves home at 8:05 a.m., what time will she get to school?

a 8:11 a.m.

b 8:16 a.m.

c 8:17 a.m.

d 8:24 a.m.

9 March Temperatures

The average March temperatures for six Ontario communities are plotted according to their latitudes on the following scatter plot.

Average March Temperature vs. Latitude
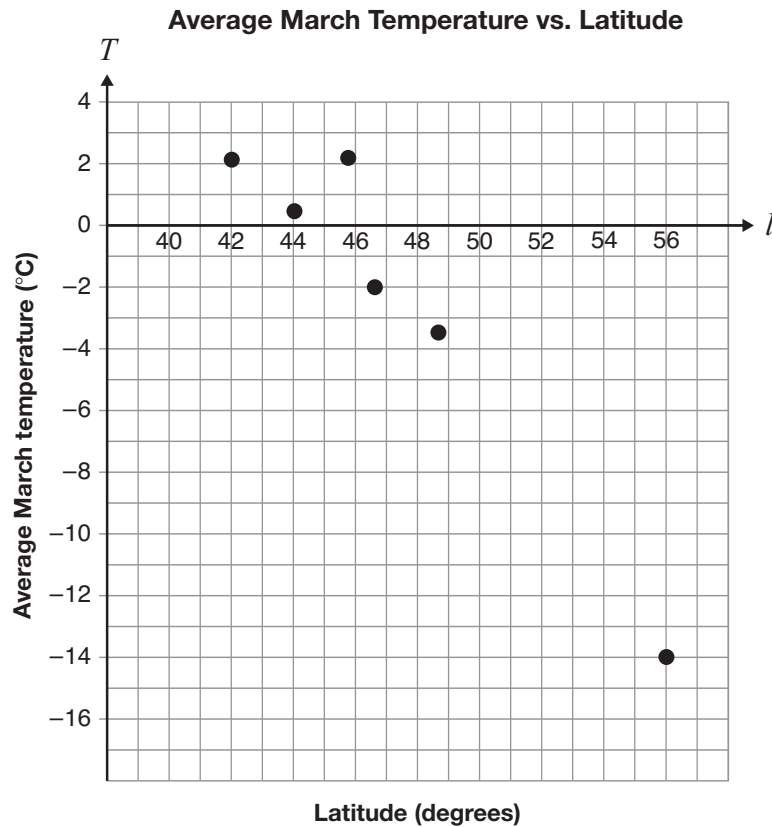
The city of Kenora has a latitude of 50° and has an average March temperature of −6.3 °C. Does the community of Kenora follow the trend of the data?

Justify your answer.

**10** 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.

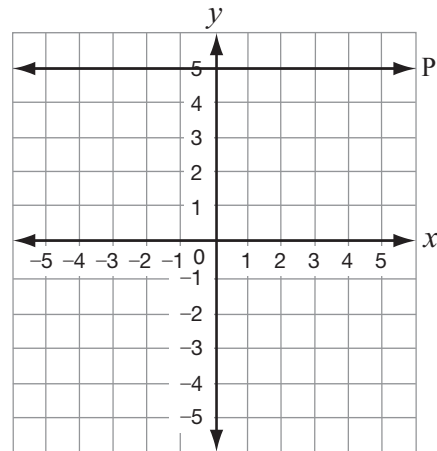**d** The exponent of exactly one variable in the non-linear equations is 1.

11 The relation shown below can be expressed as $3x + 4y - 180 = 0$.
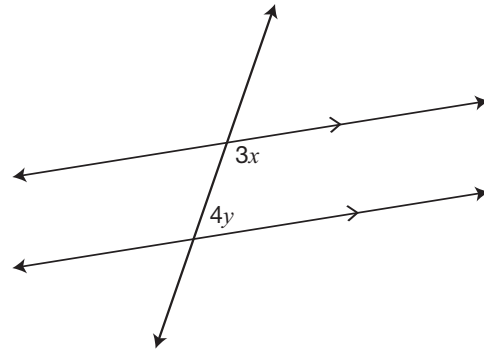
Another way to write this relation is

a $y = \frac{3}{4}x - 45$.

b $y = -\frac{3}{4}x + 45$.

c $y = -\frac{4}{3}x + 60$.

d $y = \frac{4}{3}x - 60$.

12 Line P is shown below.

Which equation represents Line P?

a $x = 5$

b $y = 5$

c $y = x + 5$

d $x = y + 5$

13 What is the equation of the line that passes through the points (2, 4) and (4, 0)?

a $y = -\dfrac{1}{2}x + 2$

b $y = -\dfrac{1}{2}x + 5$

c $y = -2x + 4$

d $y = -2x + 8$

14 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.

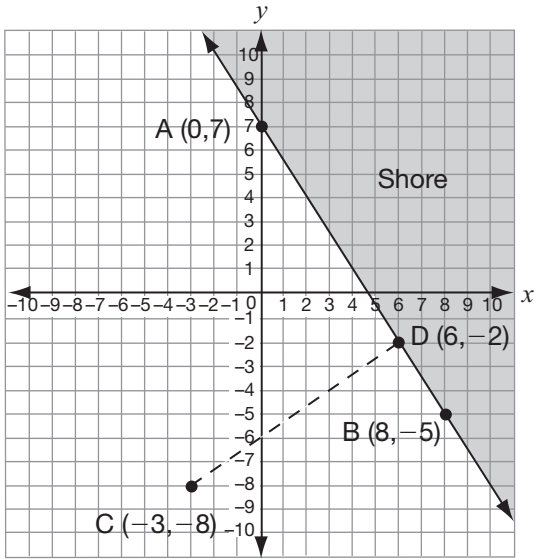c n is greater than 0 but less than 39.

d n is greater than or equal to 0 but less than 39.

ⓕ **Washed Up on the Shore**

A boat is travelling from Point C toward Point D, which is on the shoreline.
The shoreline is represented by the line through points A and B.

Determine whether the path from C to D is perpendicular to the shoreline.

Justify your answer.

16 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?
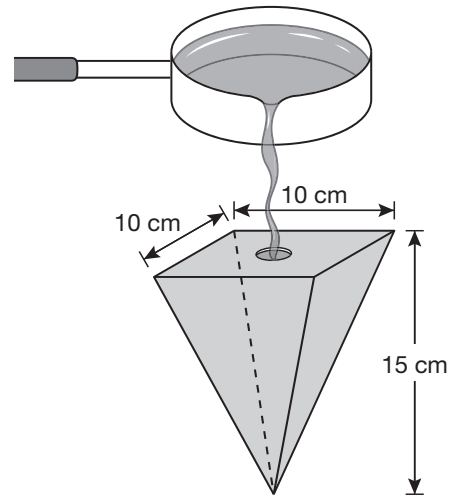
a   24 m

b   40 m

c   42 m

d   49 m

17 The Cutie Cupcake Company is having a sign made. The sign will be a semicircle on top of a trapezoid.

2 m

0.75 m

1 m
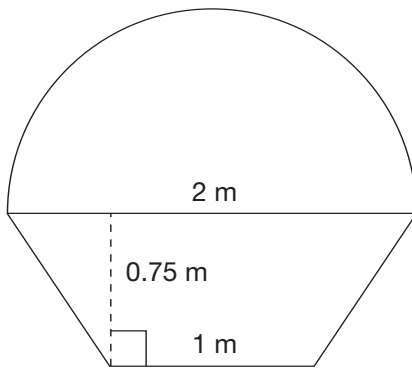
Which of the following is closest to the total area of the sign?

a   4.27 m^2

b   2.70 m^2

c   1.57 m^2

d   1.13 m^2

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

10 cm

10 cm

15 cm

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　What is the measure, in degrees, of the sum of the interior angles of a 12-sided regular polygon?
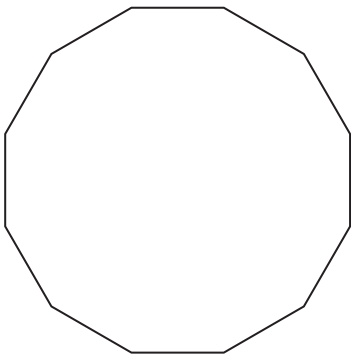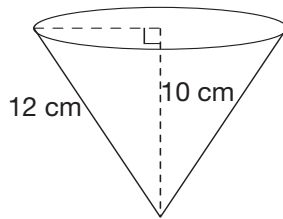
a　2160°

b　1800°

c　1500°

d　1080°

21   Cone Zone

Zach measures the slant height of a cone-shaped cup and finds that it is 12 cm. The height is 10 cm.

Determine the volume of water in the cup if Zach fills it to the top.

Show your work.

Education Quality and Accountability Office

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