Academic

Grade 9 Assessment of Mathematics

Spring 2009

SAMPLE ASSESSMENT QUESTIONS

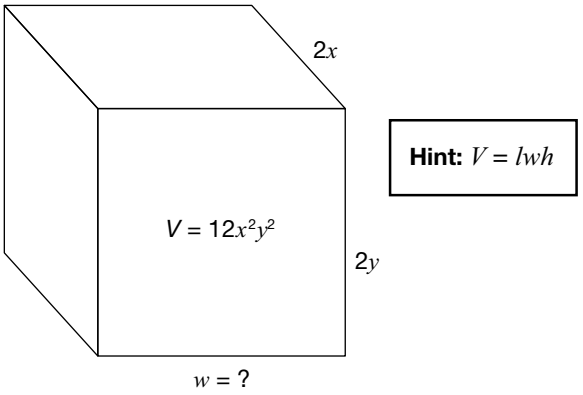
Record your answers to the multiple-choice questions on the blank Student Answer Sheet (Spring 2009, Academic).

Education Quality and Accountability Office

EQAO

Please note: The format of this booklet is different from that used for the assessment. The items themselves remain the same.

1 A box with a volume of $12x^2y^2$ is shown below.



Hint: $V = lwh$

What is the width of the box?

a $2xy$

b $3xy$

c $4x^3y^3$

d $8x^3y^3$

2 Which of the following is equivalent to the expression below?

$(4x - 5) + (2x + 1)$

a $2x - 6$

b $2x - 4$

c $6x - 6$

d $6x - 4$

3 Alfredo and his wife, Jody, work in a restaurant.

Last week Alfredo received an average of \$15 in tips for each of the 55 tables he served. Jody received an average of \$20 in tips for each of the 60 tables she served.

They are planning a weekend trip. Alfredo will pay a total of \$220 for their hotel room and Jody will pay a total of \$160 for their rental car.

How much of their combined tips will be left over after they have paid for their hotel room and rental car?

a \$1620

b \$1645

c \$2025

d \$2405

4 Keepin' Tabs

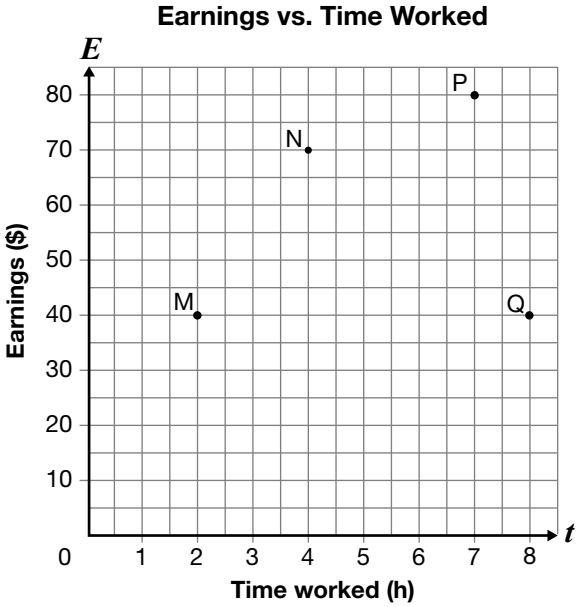
A student council collects aluminum pop tabs to raise money to purchase a wheelchair. A company buys the pop tabs for $0.88 per kilogram.

If 1267 pop tabs have a mass of one pound, how many pop tabs are needed to purchase a wheelchair worth $1500?

Show your work.

Hint:
1 kilogram = 2.2 pounds

5 The graph below represents the relationship between earnings and time worked.



Which of the following points represents the highest rate of pay?

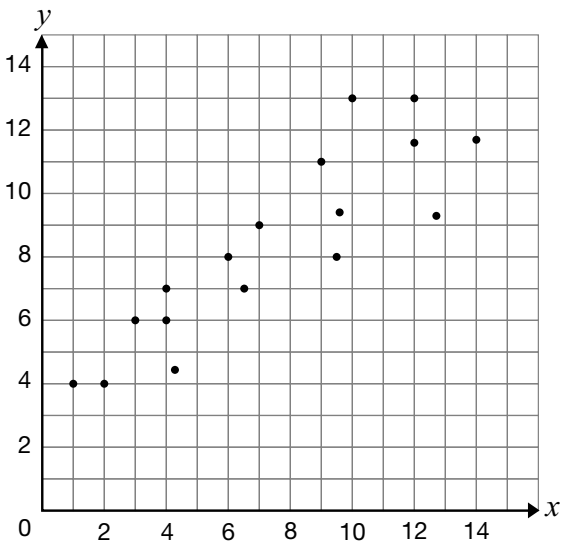
a M

b N

c P

d Q

6 Which of the following could be the slope of a line of best fit for the data shown in the scatter plot below?



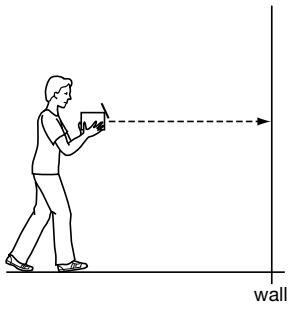
a −2

b −1

c 1

d 2

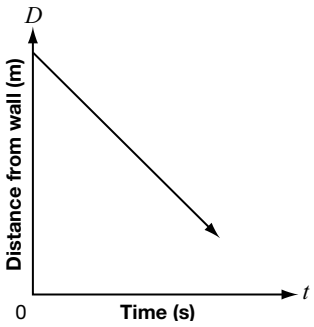
7 In an investigation, a student holds a motion detector, points it at a wall and walks toward the wall.



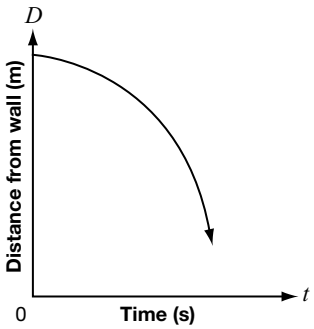
The student walks slowly at first and then speeds up as he approaches the wall.

Which of the following graphs would be produced on the graphing calculator?

a



b



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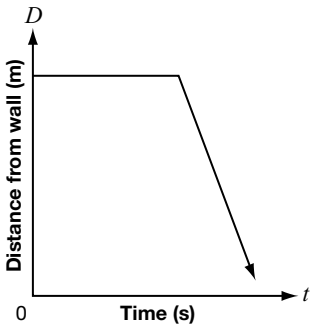
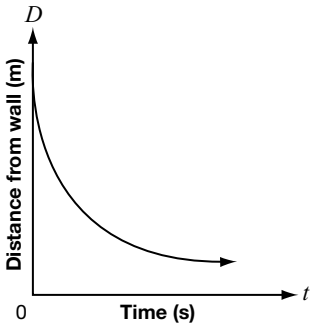


d



8 The table of values below displays the cost of renting a bicycle.

Time, t **(h)**	**Cost,** C **($)**
0	25
1	30
2	35
3	40

Which equation models the cost of renting a bicycle?

a $C = 5t$

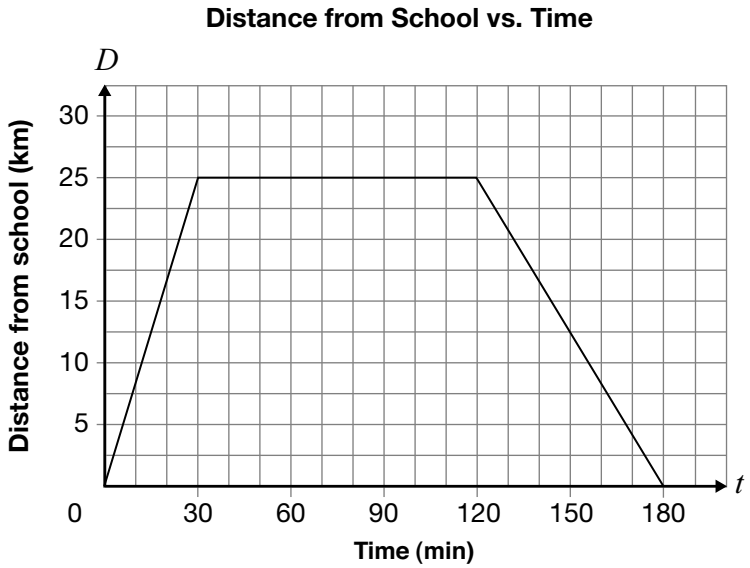
b $C = 25t$

c $C = 5t + 25$

d $C = 25t + 5$

9 Dogs Versus Cats

The Bryant Bulldogs basketball team takes the bus to play the Jordan High Thundercats.



Describe the three parts of the Bulldogs' bus trip, using the information on the graph.

Include information about distance, time, direction and speed in kilometres per minute for each section of the graph.

10 Which of the following equations does **not** represent a linear relation?

a $x = -2$

b $y = 3x - 1$

c $y = x^2 + 3$

d $3x - 2y - 1 = 0$

11 For the slope of a line, the change in x is greater than the change in y. Which of the following could represent the slope of this line?

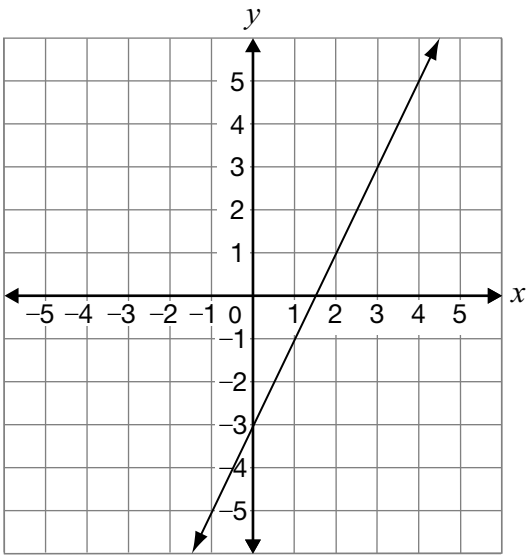
a $\frac{4}{3}$

b 2

c 1

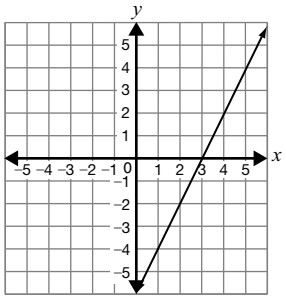
d $\frac{2}{5}$

12 The graph of a line is shown below.

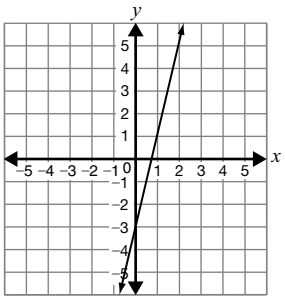


If the slope is doubled and the y-intercept remains constant, which graph below best represents the new line?

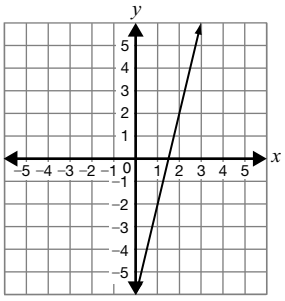
a



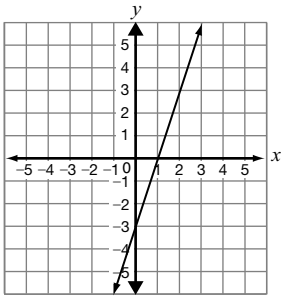
b



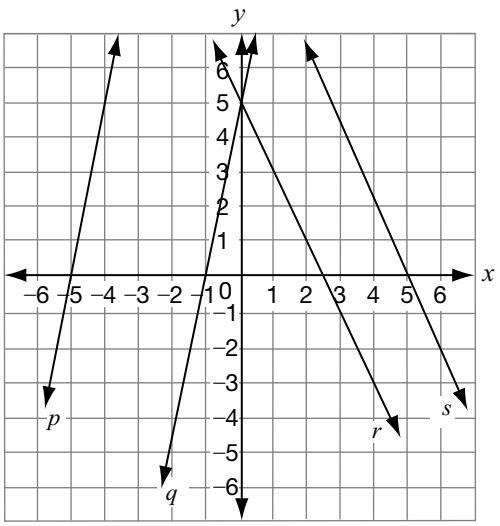
c



d



13 Consider the following linear relations.



Which line represents the graph of the equation $y = -2x + 5$?

a Line p

b Line q

c Line r

d Line s

14 The following table shows values for a linear relation.

x	y
−15	−33
−9	−25
3	−9
12	3

Which of the following equations represents the relationship shown in the table of values?

a $y = \frac{4}{3}x - 16$

b $y = \frac{4}{3}x - 13$

c $y = \frac{3}{4}x - 9$

d $y = \frac{3}{4}x - 6$

15 A Tale of Two Lines

Below are the equations of two lines.

Line A: $x - 2y + 8 = 0$

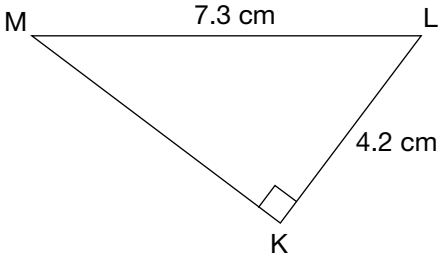
Line B: $2x + y + 1 = 0$

Compare the two lines by considering their slopes.

Justify your answer.

Hint:
Include information about
- steepness,
- direction and
- whether the lines are parallel or perpendicular, or whether they are neither.

16 Triangle KLM is shown below.



Which of the following is closest to the perimeter of triangle KLM?

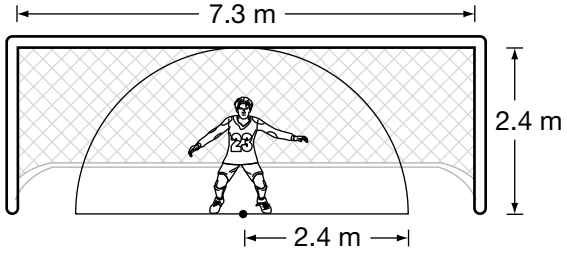
a 12.6 cm

b 16.3 cm

c 17.5 cm

d 21.0 cm

17 A soccer goalie is standing in a goal opening. From this position, she can guard the area represented by the semicircle below.



How much of the goal opening is she not guarding?

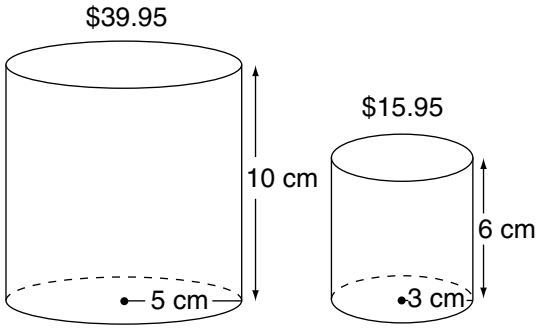
a 0.6 m^2

b 8.5 m^2

c 9.0 m^2

d 26.6 m^2

18 Two different stores sell coffee in cylindrical packages. The prices and dimensions of the packages from the two stores are shown below.



Which is closest to the difference between the unit prices of these two packages?

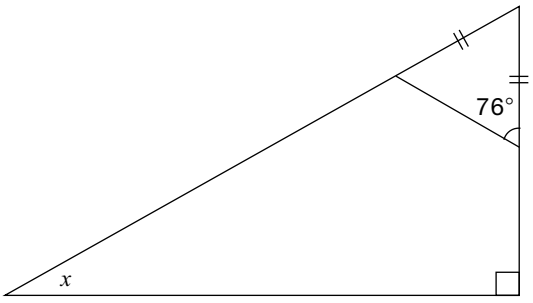
a \$0.04/cm^3

b \$0.05/cm^3

c \$0.09/cm^3

d \$0.24/cm^3

19 Consider the following diagram.



What is the value of x?

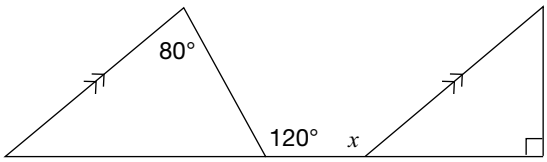
a 14°

b 28°

c 62°

d 76°

20 Consider the diagram below.



What is the value of x?

a 80°

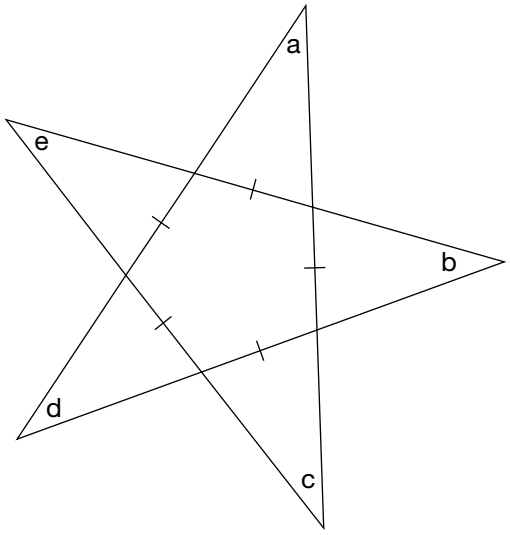
b 120°

c 140°

d 170°

21 Twinkle Twinkle

Nicole notices the star design shown below on the pavement outside a movie theatre.



Determine the sum of the angle measures in the corners of this star: a + b + c + d + e.

Justify your answer using geometric properties.

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