

Applied

Grade 9 Assessment of Mathematics

Winter 2007

SAMPLE ASSESSMENT QUESTIONS

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 ratio of girls to boys in Mr. Dilworth's music class is 18:12. What percent of the students are boys?

A 12%
B 40%
C 60%
D 67%

- 2** Which of the following expressions is equal to 49?

F $(4 + 3)^2$
G $4 + 3^2$
H $(3 + 4^2)$
J $3^2 + 4^2$

- 3** Herman uses his scientific calculator to determine the value of the expression $\frac{4}{3}\pi(3.5)^3$.

What is the **approximate** value of this expression?

A 175.0
B 175.1
C 179.0
D 179.6

- 4** Ivan shows his steps in solving the following equation for x :

$$2x + 3 = 7$$

Step 1: $2x + 3 - 3 = 7 - 3$

Step 2: $2x = 4$

Step 3: $x = 4 \times 2$

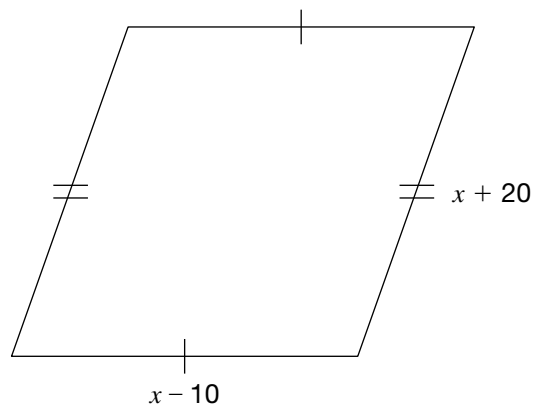
Step 4: $x = 8$

In which step has Ivan made an **error**?

F Step 1
G Step 2
H Step 3
J Step 4

5 Fabulous Fencing

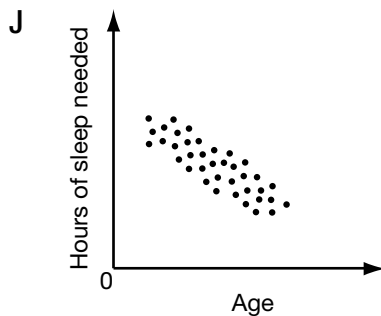
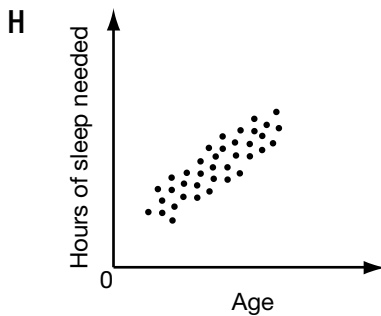
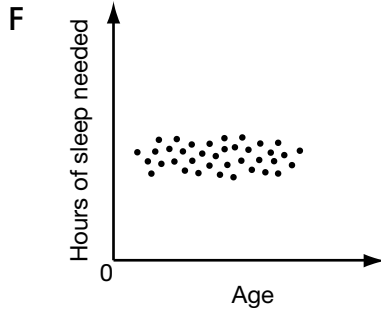
Pauline builds a fence around her garden, which is shaped like a parallelogram, as shown below.



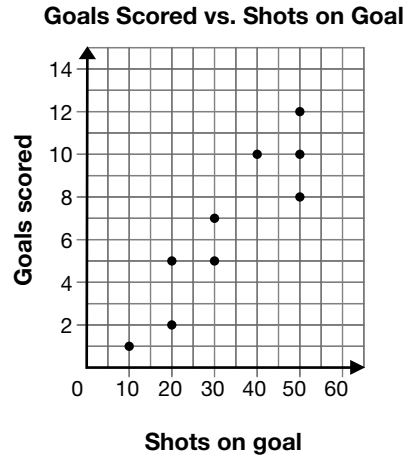
Pauline uses 100 metres of fencing along the perimeter of the garden. Find the dimensions of her garden. Show your work.

- 6** Sunil surveys 200 students to find out how much sleep they need. He finds that students need less sleep as they get older.

Which scatter plot most likely represents the survey results?



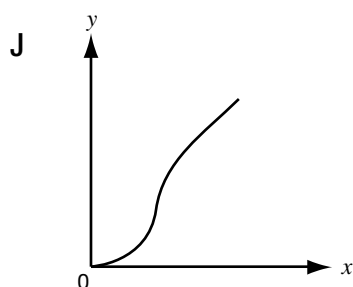
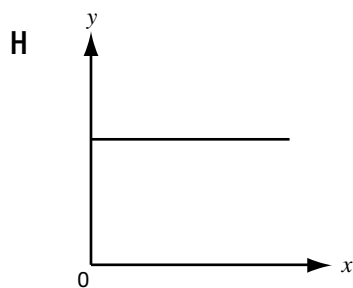
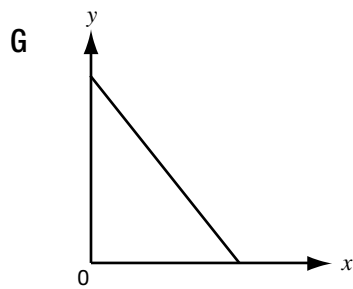
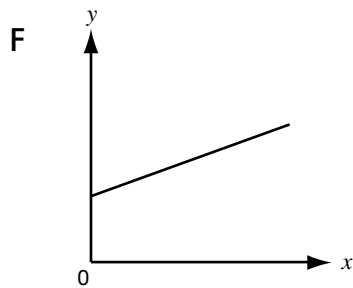
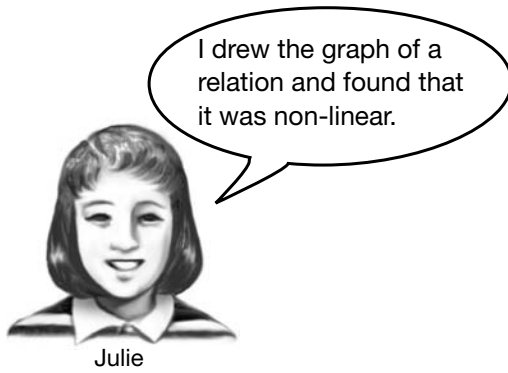
- 7** The scatter plot below shows the number of goals scored versus shots on goal by different members of a soccer team during the course of a season.



What relationship is shown in the scatter plot?

- A** There is no relationship between shots on goal and the number of goals scored.
- B** The number of goals scored decreases as the number of shots on goal increases.
- C** The number of goals scored increases as the number of shots on goal increases.
- D** The number of goals scored stays the same no matter how many shots on goal are taken.

- 8** Which graph does Julie draw?



- 9** Which table shows a linear relationship between x and y ?

A

x	y
1	1
2	4
3	9
4	16

B

x	y
1	2
2	4
3	8
4	16

C

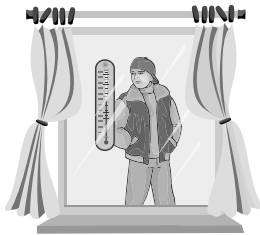
x	y
1	10
2	20
3	30
4	40

D

x	y
1	10
2	100
3	1000
4	10000

- 10** One spring afternoon, Michael records the outside temperature every hour in the table below.

Time (h)	Temperature (°C)
12	9.3
13	11.7
14	14.1
15	16.5
16	18.9
17	21.3



What is the **rate of change** of the temperature in relation to time?

- F 2.4 °C/h
- G 2 °C/h
- H 0.9 °C/h
- J 0.42 °C/h

- 11** A banquet hall charges a fixed rate, plus a cost of \$15 per person. For a party of 50 people, the total cost is \$1200.

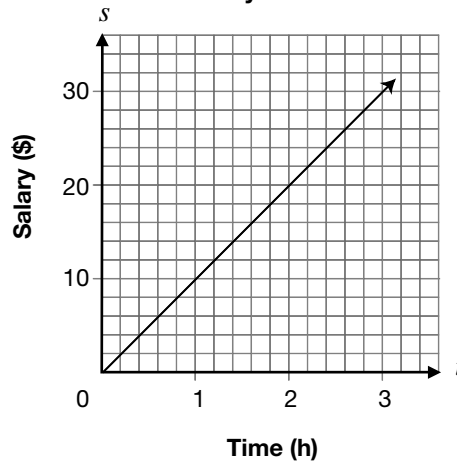
Which equation models this relation, where C is the total cost, in dollars, and n is the number of people attending?

- A $C = 24n$
- B $C = 24n + 1200$
- C $C = 15n + 450$
- D $C = 15n + 1200$

- 12** The graph below represents the relationship between Jackie's salary, s , and the length of time she works, t .



Salary vs. Time



What is Jackie's **salary** when she works 8 h?

- F \$40
- G \$80
- H \$120
- J \$125

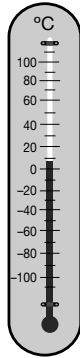
- 13** The formula

$$B = 100 - \frac{h}{156}$$

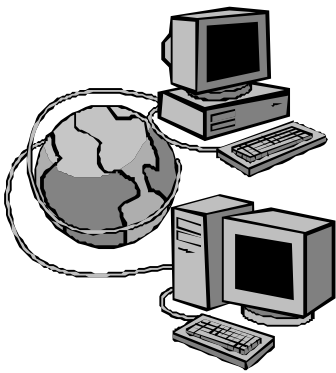
gives water's boiling point, B , in degrees Celsius at an altitude of h metres.

What is the approximate **boiling point of water** at an altitude of 5951 m?

- A 38 °C
- B 62 °C
- C 96 °C
- D 156 °C



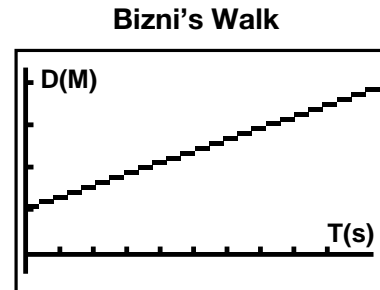
- 14** Internet Plus charges a **base fee of \$14 each month**, and **\$0.08 per minute**.



For how many minutes did Harpreet use the Internet if he is charged **\$42** for a month?

- F 350 min
- G 511 min
- H 525 min
- J 700 min

- 15** Bizni is 1 m from a motion detector when he starts walking. The graph produced by the graphing calculator is shown below.

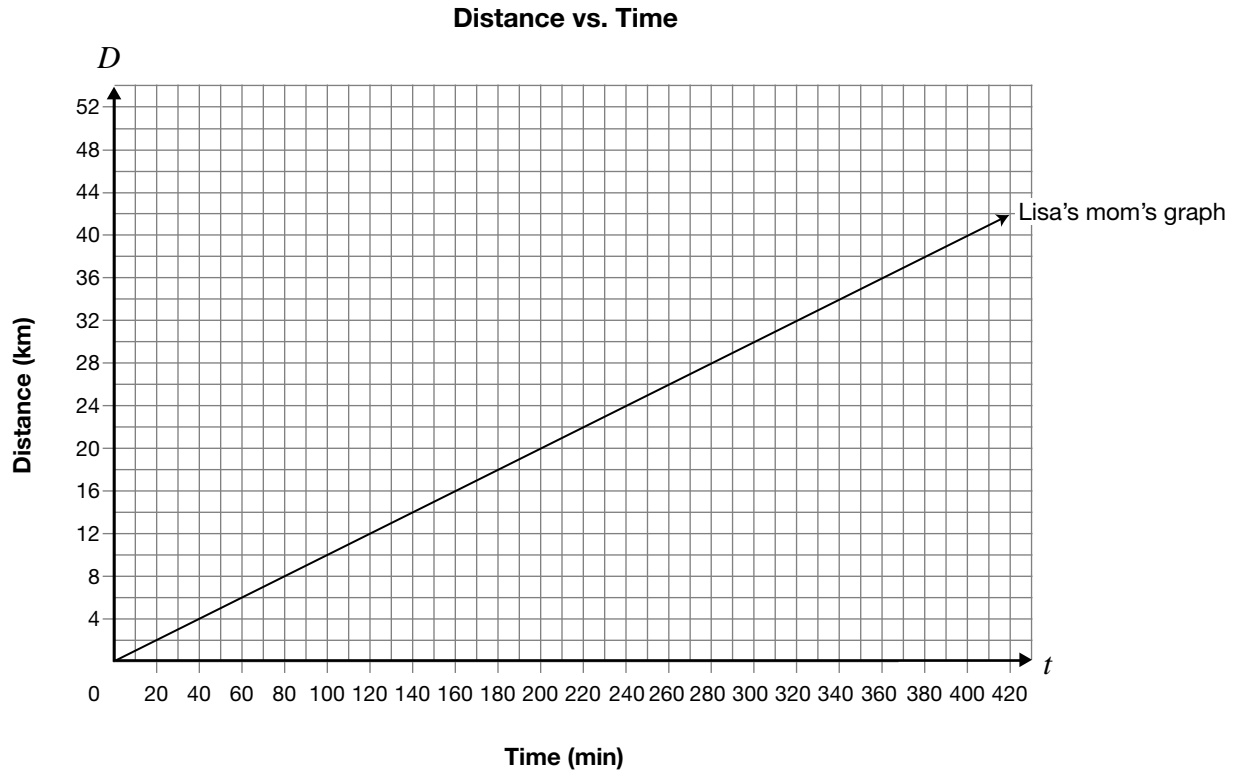


How could Bizni change his walk to produce a graph with a negative rate of change?

- A by walking farther away from the motion detector at a constant speed
- B by increasing his speed and walking away from the motion detector
- C by walking toward the motion detector at a constant speed
- D by jumping up and down in front of the motion detector

16 Marathon Running

Lisa and her mom decide to participate in a long-distance race called a marathon. Lisa’s mom walks the marathon at an average of 1 kilometre every 10 minutes, as shown by the graph.



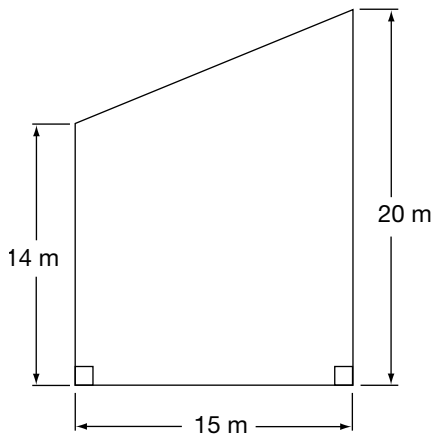
Lisa starts the marathon 2 hours after her mom started and averages 1 kilometre every 5 minutes.

When will Lisa pass her mom? Use a graphical model.

- 17** A lawn care company charges its customers based on the size of the lawn. The company uses the following schedule.

Area of lawn	Cost per month
Less than 200 m^2	\$50
Between 200 m^2 and 250 m^2	\$60
Between 250 m^2 and 300 m^2	\$70
Over 300 m^2	\$80

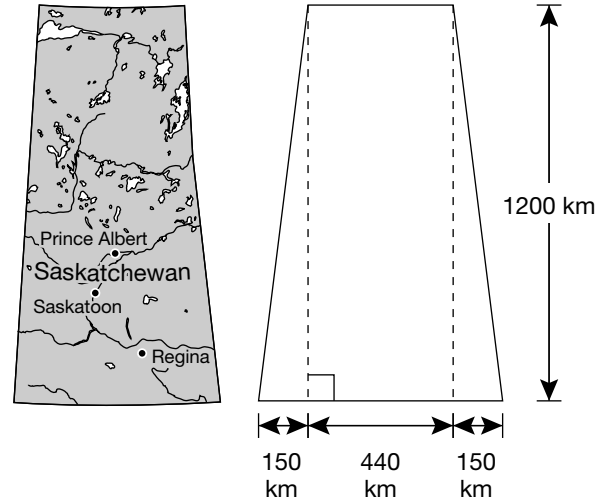
The company is caring for Denton's lawn, which has the dimensions shown.



How much should Denton be paying per month?

- A \$50
- B \$60
- C \$70
- D \$80

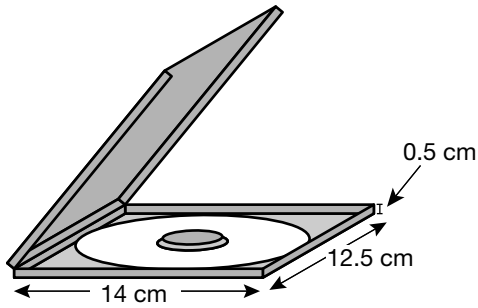
- 18** Vanessa draws a model of a map of Saskatchewan in the shape of a trapezoid. The dimensions represented on the map are shown below.



Which is closest to the area of Saskatchewan as represented by Vanessa's model?

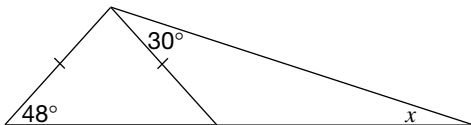
- F $354\,000 \text{ km}^2$
- G $528\,000 \text{ km}^2$
- H $708\,000 \text{ km}^2$
- J $888\,000 \text{ km}^2$

- 19** A CD case has the dimensions shown in the drawing below.



What is the volume of the CD case?

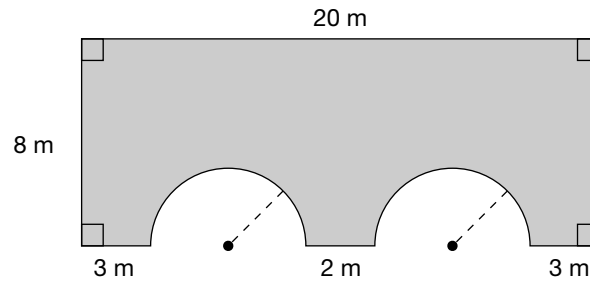
- A 26.5 cm^3
 - B 27 cm^3
 - C 87.5 cm^3
 - D 175 cm^3
- 20** Determine the value of x .



- F $x = 18^\circ$
- G $x = 30^\circ$
- H $x = 48^\circ$
- J $x = 78^\circ$

21 Big Bridge

The dimensions of a side of a bridge are shown in the diagram below. The arches are semicircles with the same radius.



Determine the area of the side of the bridge shown. Show your work.

**Education Quality and
Accountability Office**



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