

# Multiple-Choice Questions

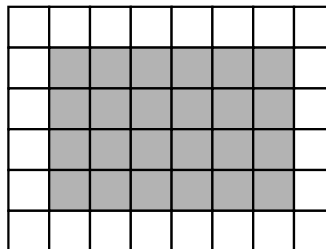



# Directions to Students about Answering Multiple-Choice Questions

1. For this part of the assessment, make sure that you have the following materials along with *Booklet 1*:
  - a *Student Answer Sheet*
  - an HB pencil and an eraser
  - a ruler and a protractor
  - a scientific calculator or a graphing calculator
  - some paper for rough work
2. Be sure to read the problem and all four answer choices for each question carefully. When you choose an answer, fill in the circle on your answer sheet that goes with that answer.
3. Always choose the best answer. Mark only one answer for each question.
4. There are 24 questions in *Booklet 1*. Try to answer all of them. Do not spend too much time on any one question.
5. Figures in this section are not drawn to scale.
6. Now do the following sample question. Fill in your choice on your *Student Answer Sheet* in the sample question box.

## Sample Question


Find the area of the shaded region in the rectangle below.



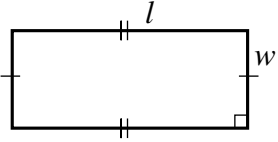
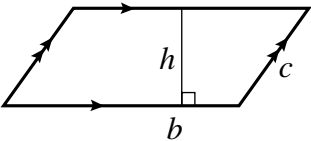
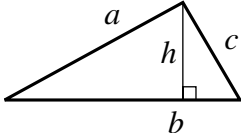
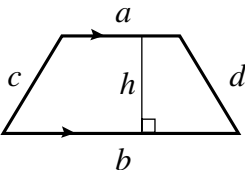
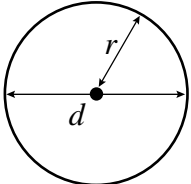
 1 square unit

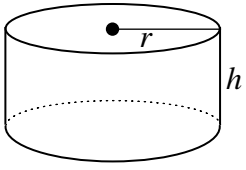
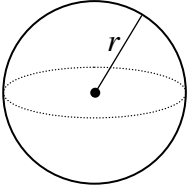
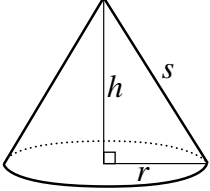
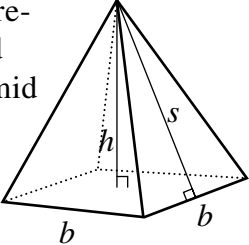
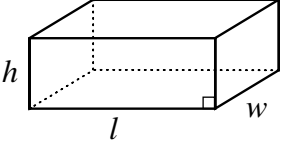
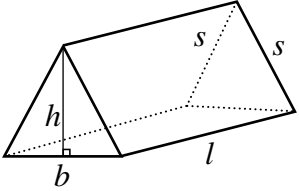
- A 16 square units
- B 24 square units
- C 30 square units
- D 36 square units

For the sample question, you should have filled in the circle  $\textcircled{B}$  on your answer sheet. If you did not mark the circle that goes with B, erase the answer you marked and fill in the correct answer.

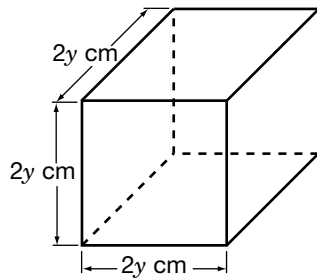
7. You will have **30 min** to do the 24 multiple-choice questions.
8. When you see the  sign, you have completed *Booklet 1*. Check your answers. Then wait quietly for directions from your teacher.

# Formula Sheet

Geometric Figure	Perimeter	Area/Surface Area
<p>Rectangle</p> 	$P = 2l + 2w$ $P = 2(l + w)$	$A = lw$
<p>Parallelogram</p> 	$P = b + b + c + c$ $P = 2b + 2c$	$A = bh$
<p>Triangle</p> 	$P = a + b + c$	$A = \frac{bh}{2}$ <p><b>or</b></p> $A = \frac{1}{2}bh$
<p>Trapezoid</p> 	$P = a + b + c + d$	$A = \frac{(a + b)h}{2}$ <p><b>or</b></p> $A = \frac{1}{2}(a + b)h$
<p>Circle</p> 	$C = \pi d$ <p><b>or</b></p> $C = 2\pi r$	$A = \pi r^2$

Geometric Figure	Area/Surface Area	Volume
Cylinder 	$A_{top} = \pi r^2$ $A_{base} = \pi r^2$ $A_{side} = 2\pi r h$ $A_{total} = 2\pi r^2 + 2\pi r h$	$V = \pi r^2 h$
Sphere 	$A = 4\pi r^2$	$V = \frac{4}{3} \pi r^3$
Cone 	$A_{cone} = \pi r s$ $A_{base} = \pi r^2$ $A_{total} = A_{cone} + A_{base}$	$V = \frac{1}{3} \pi r^2 h$
Square-based pyramid 	$A_{triangle} = \frac{1}{2} b s \text{ (for each triangle)}$ $A_{base} = b^2$ $A_{total} = A_{4 \text{ triangles}} + A_{base}$	$V = \frac{1}{3} b^2 h$
Rectangular prism 	$A_{total} = wh + wh + lw + lw + lh + lh$ $A = 2(wh + lw + lh)$	$V = lwh$
Isosceles triangular prism 	$A_{triangle} = \frac{1}{2} b h \text{ (for each triangle)}$ $A_{rectangles} = ls + lb + ls$ $A_{total} = A_{rectangles} + A_{2 \text{ triangles}}$	$V = \frac{1}{2} (b h) l$

1. Each side of a cube is  $2y$  cm long. What is the volume of the cube?



- A  $8y^3 \text{ cm}^3$   
 B  $6y \text{ cm}^3$   
 C  $4y^3 \text{ cm}^3$   
 D  $2y \text{ cm}^3$
2. The total cost,  $C$ , in dollars, of running an advertisement in a newspaper is made up of an initial cost of \$12, plus a charge of \$5 per day, where  $n$  represents the number of days.



Which equation represents this relationship?

- F  $C = 12n + 5$   
 G  $C = 12 + 5n$   
 H  $C = (12 + 5)n$   
 J  $C = 12 + 5 \div n$

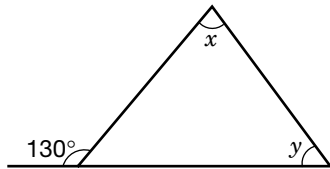
3. The cost,  $C$ , in dollars to print leaflets,  $n$ , is given by the formula  
 $C = 35 + 0.03n$ .



What is the cost of printing 900 leaflets?

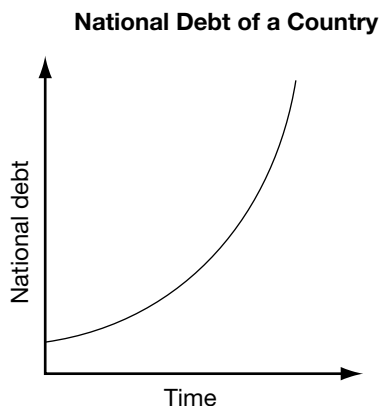
- A \$27.00  
 B \$35.00  
 C \$37.70  
 D \$62.00
4. Simplify the following expression.  
 $(x^2 + 4x + 3) + x(3 - x)$
- F  $x + 3$   
 G  $3x$   
 H  $7x + 3$   
 J  $-2x^2 + 4x + 3$

5. Pat draws this figure.



What is the relationship between the angles in this diagram?

- A  $y = x$
  - B  $y = x + 50^\circ$
  - C  $x + y = 50^\circ$
  - D  $x + y = 130^\circ$
6. Study the following graph that shows the relationship between the national debt of a country and time.



Which statement is true?

- F The national debt is growing linearly.
- G The national debt is growing non-linearly.
- H As time increases, the national debt decreases.
- J As time increases, the national debt stays constant.

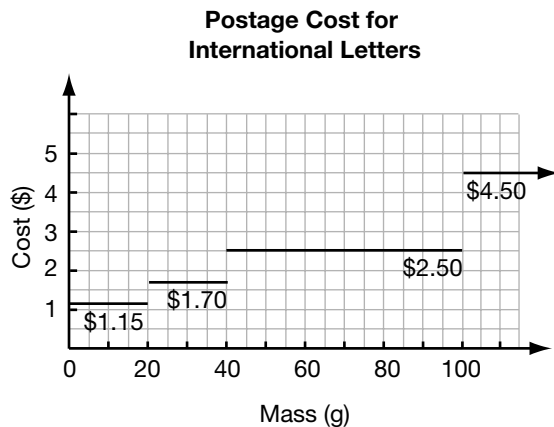
7. In the morning, Sylvie left home to go to school. The graph below shows her distance from home versus time.



Which sequence of events below is best represented by the graph?

- A She runs for several minutes. Then she tires and walks instead.
- B She walks for several minutes. Then she turns around and goes home.
- C She walks for several minutes. Then she stops to chat with a neighbour.
- D She walks for several minutes. Then she sees Ken ahead and runs to meet him.

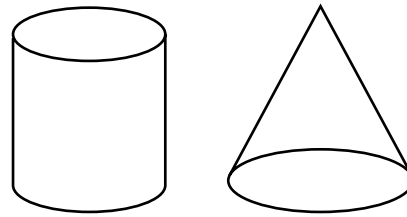
8. The graph shows how the cost of postage for an international letter is related to the mass of the letter.



Elaine mailed two separate letters to the same address. If the masses of the letters were 19 g and 36 g, how much would she have saved by mailing them together in a single envelope? Do not include the mass of the envelopes in your calculation.

- F \$0.35
- G \$0.80
- H \$0.90
- J \$2.85

9. Yin measures a solid cylinder and a solid cone and finds that the solids have the same height and same base diameter.



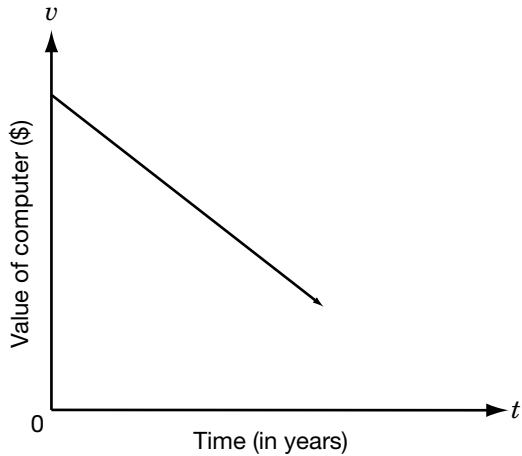
Which of the following statements is true?

- A The volume of the cylinder is equal to three times the volume of the cone.
- B The total surface areas of the cylinder and cone are the same.
- C The volumes of the cylinder and cone are the same.
- D The total surface area of the cylinder is equal to three times the total surface area of the cone.

10. A computer is expected to decrease in value over time. The relationship between the value,  $v$ , of the computer in dollars after  $t$  years is written as the following equation:

$$v = -300t + 2100$$

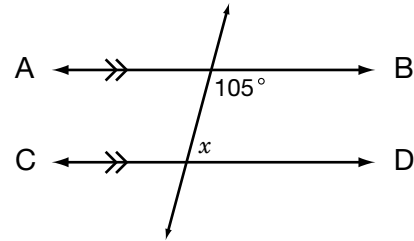
A line representing the relationship is graphed.



What does the  $v$ -intercept of the line represent?

- F the decrease in value per year
- G the initial value of the computer
- H the number of years until the value is \$0
- J the number of years the computer will work

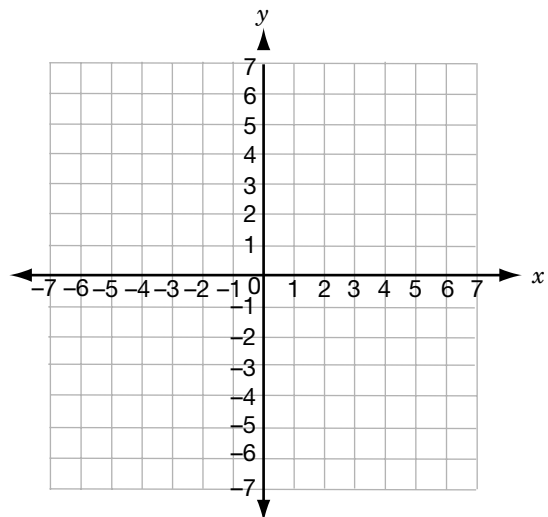
11. In the figure below,  $AB$  is parallel to  $CD$ .



What is the value of  $x$ ?

- A  $75^\circ$
- B  $85^\circ$
- C  $95^\circ$
- D  $105^\circ$

12. What are the coordinates of the point of intersection of the lines  $y = -x + 1$  and  $x = 3$ ?



- F  $(3, -2)$
- G  $(3, 2)$
- H  $(2, 3)$
- J  $(-2, 3)$

