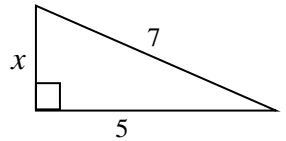


**PART A:** Multiple Choice (20)

**NOTE:** Your actual EXAM will have 40 MULTIPLE CHOICE QUESTIONS.

- If  $x = -4$  and  $y = -1$ , when  $(x+2)(y-4)$  is evaluated the answer is:  
**A** 10      **B** 18      **C** 6      **D** -10
- When simplified,  $6^4 \times 6^3$  is:  
**A**  $36^7$       **B**  $6^7$       **C**  $6^{12}$       **D**  $36^{12}$
- Expressed as a single power,  $\frac{5^{-3}}{5^2}$  is:  
**A**  $1^{-5}$       **B**  $5^{-1}$       **C**  $1^{-1}$       **D**  $5^{-5}$
- When simplified  $5(x+4) - 2(x+7)$  is:  
**A**  $3x+11$       **B**  $7x-3$       **C**  $3x+34$       **D**  $3x+6$
- $3y - 2x + 60 = 0$  in the slope y-intercept form is:  
**A**  $y = 2x - 61$       **B**  $y = \frac{2}{3}x + 60$       **C**  $y = \frac{2}{3}x - 20$       **D**  $-\frac{2}{3}x - 20$
- Which equation has a solution  $x = 2$ ?  
**A**  $\frac{1}{2}x + 4 = 6$       **B**  $4 - \frac{1}{2}x = 3$       **C**  $\frac{1}{2}x - 4 = 3$       **D**  $\frac{1}{2}x - 4 = 2$
- Three more than twice a number can be written as:  
**A**  $2(x+3)$       **B**  $3x+2$       **C**  $2x+3$       **D**  $2x-3$
- Which is the correct relationship in the triangle shown?  
**A**  $x+5=7$       **B**  $x^2=5^2+7^2$       **C**  $x^2+5^2=7^2$       **D**  $7=5x$
- Pipes Plumbing charges \$25 for a house visit plus \$35 for every hour on the job. Which of the following formulas could represent the earning schedule:



- A**  $E = 25 + h$       **B**  $E = 35 + 25h$       **C**  $E = 25 + 35h$       **D**  $E = 35h$
10. Which table of values best represents a linear relationship?

**A**

$x$	0	1	2	3	4	5
$y$	1	2	4	8	16	32

**B**

$x$	0	1	2	3	4	5
$y$	0	1	3	6	10	15

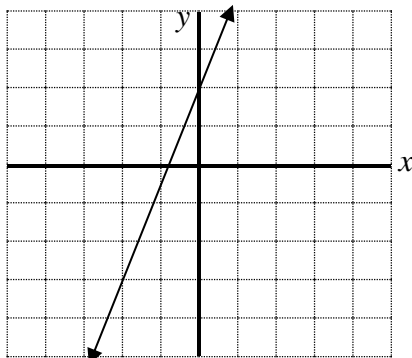
**C**

$x$	0	1	2	3	4	5
$y$	1	12	23	34	45	56

**D**

$x$	0	1	2	3	4	5
$y$	4	1	0	1	4	9

11. Which of the following statements best describes the graph shown?



- A** Positive slope, positive  $y$  – intercept  
**B** Negative slope, negative  $y$ -intercept  
**C** Positive  $y$ -intercept, positive  $x$ - intercept  
**D** Negative slope, positive  $y$ -intercept

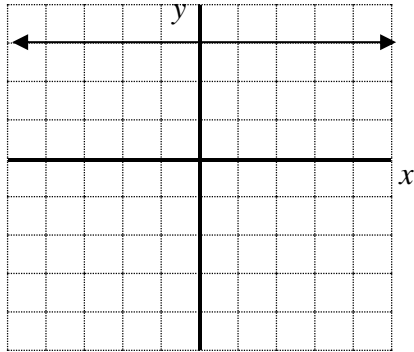
12. Given  $y = -\frac{2}{3}x + 5$ , the slope is:

- A**  $-\frac{2}{3}$       **B** 5      **C**  $\frac{-3}{2}$       **D**  $\frac{-3}{-2}$

13. The equation of the line with slope 5 and y intercept -8 is:

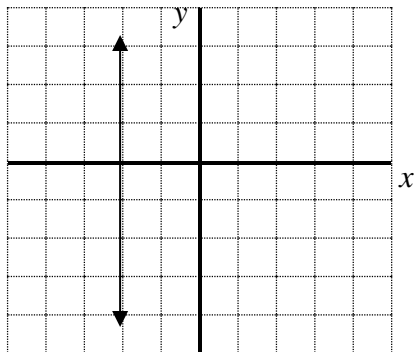
- A**  $y = -8x + 5$       **B**  $y = -5x + 8$       **C**  $y = 5x - 8$       **D**  $y = 8x + 5$

14. The equation of the line shown is:

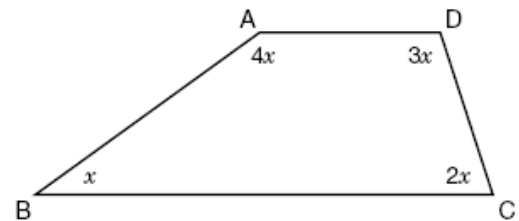


- A**  $x = 3$   
**B**  $y = 3$   
**C**  $y = x + 3$   
**D**  $x + y = 3$

15. The slope of the line shown is:



- A** -2  
**B** *undefined*  
**C** 0  
**D** *negative*



16. ABCD is a quadrilateral pictured to the right. What is the measure of  $\angle BCD$ ?

- A**  $36^\circ$       **B**  $40^\circ$       **C**  $72^\circ$       **D**  $120^\circ$

17. What is the measure, in degrees, of the sum of a 12-sided polygon?

- A**  $1800^\circ$       **B**  $1500^\circ$       **C**  $1080^\circ$       **D**  $2160^\circ$

18. The surface area (to the nearest tenth) of a sphere with radius = 10 cm is:

- A**  $78.5cm^2$       **B**  $314.1cm^2$       **C**  $4188.8cm^2$       **D**  $1256.6cm^2$

19. A farmer has 3600 m of fence. The dimensions that will maximize the area are:

- A** 60 m x 60 m      **B** 900 m x 900 m      **C** 36 m x 36 m      **D** 600 m x 600 m

20. Determine the least amount of aluminum required to construct a cylindrical can with a 1-L capacity.

- A**  $418.8cm^2$       **B**  $554cm^2$       **C**  $554cm^3$       **D**  $1256.6cm^2$

**PART B:** Fill in the Blanks (7)

21. Evaluate:

i)  $(-3)^3$  \_\_\_\_\_

ii)  $-8(5 - 12)^0 \div 4^2$  \_\_\_\_\_

22. Simplify:

i)  $(-15x^2y)(-2xy)$  \_\_\_\_\_

ii)  $(x-7)-3(x-6)$  \_\_\_\_\_

23. Solve:

i)  $3x-7=17$  \_\_\_\_\_

ii)  $A = \pi r^2$ ; rearrange for r \_\_\_\_\_

24. Identify the dependent variable in the following relation:

*Calories consumed & Weight gain*

\_\_\_\_\_

25. Solve for x in the proportion correct to 2 decimal places:

$4 : x = 26 : 40$  \_\_\_\_\_

26. 28 % of 540 \_\_\_\_\_

**PART C:** Full Solution (Mock exam: use separate paper)

**NOTE: Your actual EXAM will have 73 marks of full solutions with adequate space to write your answers directly on the exam paper.**

27. Simplify:

a)  $(2xy - 1z^3) + (-3xy + 7z^3)$

b)  $(-5x^2 + x - 8) - (3x^2 - 9x - 4)$

c)  $3(6x - 8)$

d)  $5x(7x - y)$

28. Solve each of the following:

a)  $12x - 25 = 4x + 7$

b)  $4(x-2) - (x+3) = x-14$

c)  $\frac{x}{3} + 7 = \frac{2}{5}$

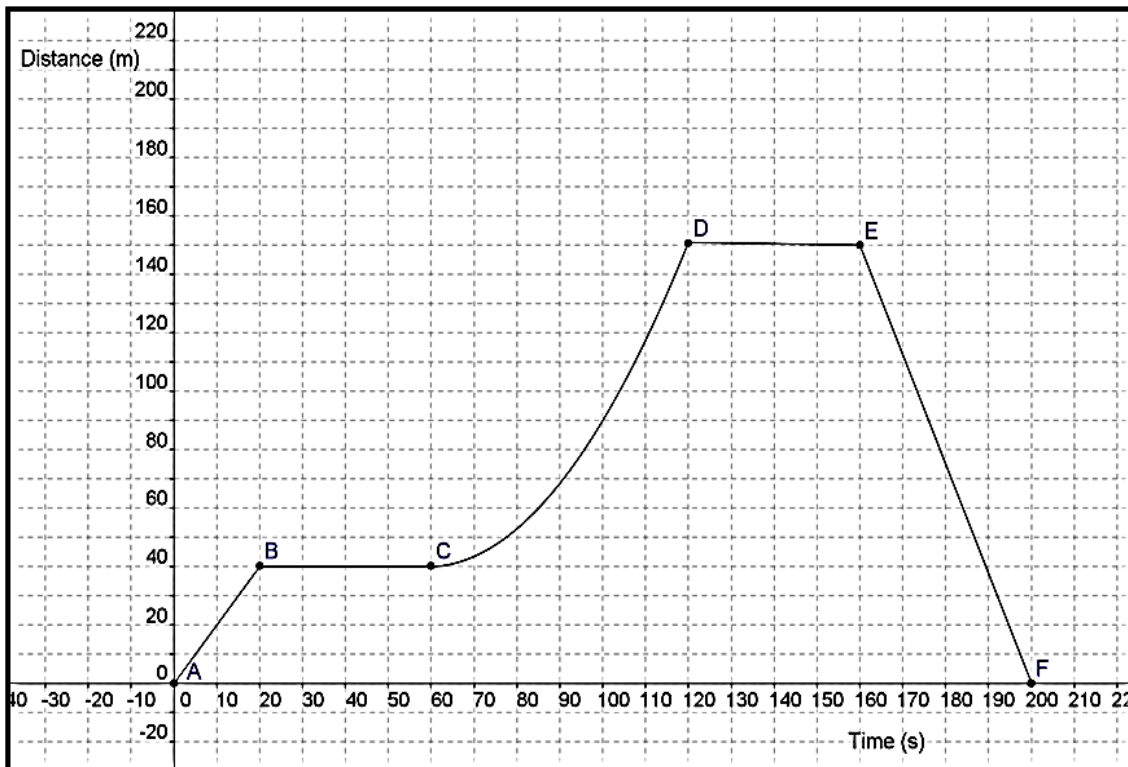
d)  $\frac{5a}{4} - \frac{(2a-4)}{3} = \frac{a+3}{5} + \frac{3}{2}$

29. Write the equation  $y = \frac{3}{5}x - 1$  in the form  $Ax + By + C = 0$ .

30. Determine the slope of the line segment joining A (3, -5) to B (1, -7).

31. Determine the **equation of the line** that:
- has a slope of -3 and the same y-intercept as  $y = 8x - 9$ .
  - is perpendicular to  $y = \frac{4}{5}x - 7$  and has a y-intercept of 12.
  - passes through points R (5, -2) and S (2, 7).
  - is parallel to the y-axis and passes through point (-12, -20).

32. Sam's movements after he left his house are shown on this distance-time graph. Describe his movements (starting and stopping points and speed changes).



33. Every year since she was born, Sara's mother has recorded her height.

- Draw a scatter plot of the data in the table.
- Classify the relation as linear or non-linear. Explain your choice.
- Draw a line or curve of best fit, whichever is most appropriate.
- About how tall was Sara when she was 13 years old? **Show your work on the graph.** Did you use interpolation or extrapolation to make your predictions? Explain.

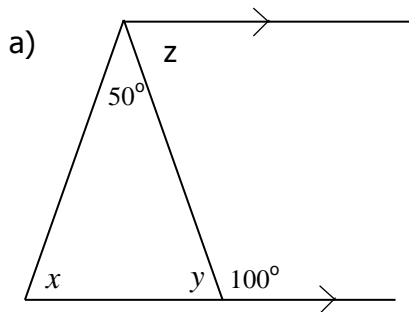
Age (years)	Height (cm)
0	48
1	64
2	75
3	90
4	105
5	120
6	128
7	135
8	141
9	146
10	149
11	153
12	157

34. The cost  $C$  cents to print and bind  $n$  copies of a school letter is modeled by the equation

$$C = 0.10n + 50$$

- What does the C- intercept represent?
- What does the slope represent?
- Use the equation to determine how many copies can be made for **\$80.00**.
- Graph the relation.
- A different printing company uses the equation  $C = 0.5n$  Graph this equation on the same grid as  $C = 0.10n + 50$ .
- Determine the point of intersection and interpret its meaning in this problem.

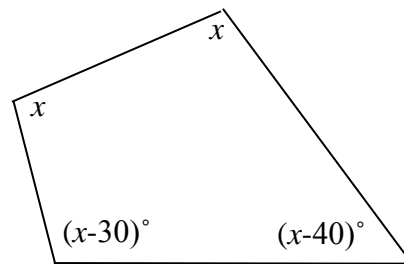
35. Solve for the unknown variables.



$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

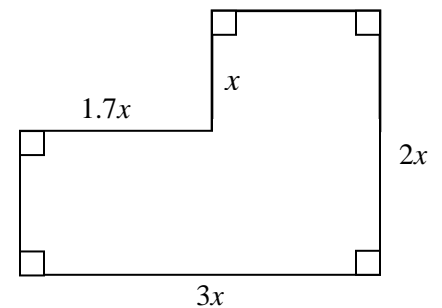
$$z = \underline{\hspace{2cm}}$$



$$x = \underline{\hspace{2cm}}$$

36. Given the diagram to the right,

- State the perimeter of the composite shape in **simplified** form.
- Determine  $x$ , if the perimeter is 50.6 cm.



37. Given the diagram to the right,

- State the area of the composite shape in **simplified** form.
- Determine  $x$ , if the area is 300 cm<sup>2</sup>.

38. Salt for the roads are stored in a cone shaped storage building. Find the amount of salt that can be stored if the diameter of the base of the cone of the building is 15 m and the slant height is also 15 m.

39. A spherical soccer ball with radius 5cm, was packaged into a box in which it fit snugly.

- Determine the surface area of the ball.
- Determine the surface area of the box.
- Determine the volume of empty space inside the box.

40. Find the dimensions of the square-based prism, having a volume of 1200 cm<sup>3</sup> with the least surface area.