Carlingford High School

Mathematics

Year 9 5.2 Term 2 Examination 2019

Name: _____

Circle your teacher's name:

Miss Aung/Mr Cheng Ms Lobejko

Mrs Blakeley/Mr Fardouly Mr Gong

Time allowed: 50 minutes

- Show all necessary working.
- Answer all questions in the spaces provided.
- Marks may be deducted for careless or untidy work.
- Questions marked with an asterisk * are extension level questions.
- **Complete the examination in blue or black pen.**

Topic	Surface Area & Volume	Linear Relationships	Total
Mark	/ 36	/ 32	/ 68

Surface Area and Volume

1) Rearrange the words in **bold** below to form a sentence. Remember to add a capital letter at the beginning, and a full stop at the end, of the sentence. **[1]**

solid of amount volume the of occupies a space is the it

_____

_____

_____

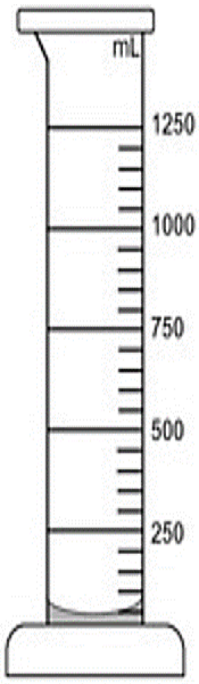
2) Convert: **[1 mark each]**

a) $5.2\ km =$ _____ m

b) $172{,}800\ s =$ _____ $days$

c) $400\ cm^3 =$ _____ L

3)



For the measuring device on the left, find:

a) The size of one unit. **[1]**

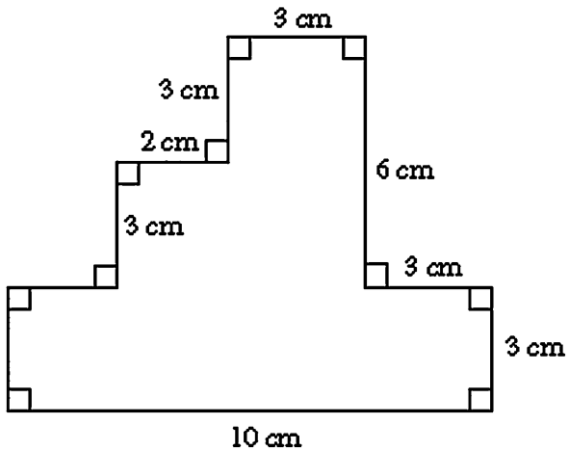
_____

b) Its limit of accuracy **[2]**

_____

_____

4) Find the **perimeter** of the shape below. **[2]**



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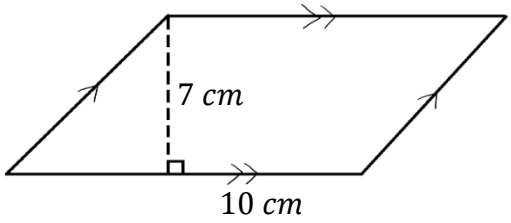
5) Calculate the **area** of each of the following.

a) **[1]**



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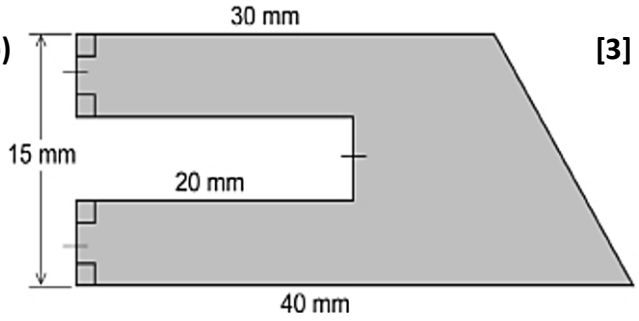
_____

_____

b) **[3]**



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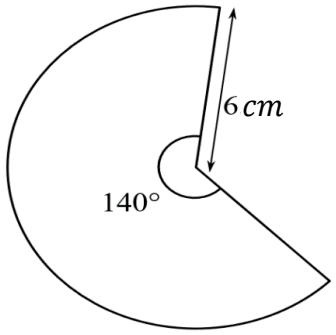
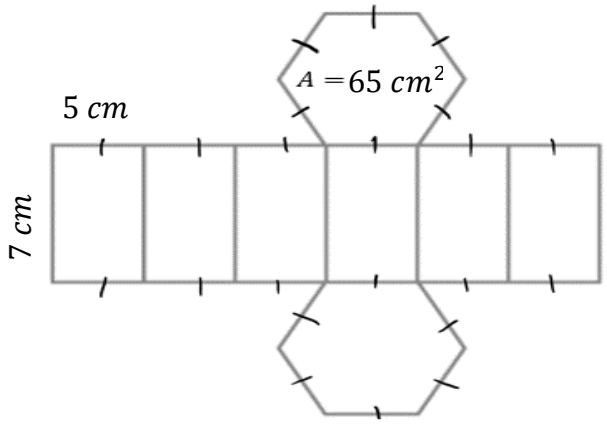
6) For the sector below, calculate its:



a) Exact **area** **[2]**

b) **Perimeter**, to one decimal place **[2]**

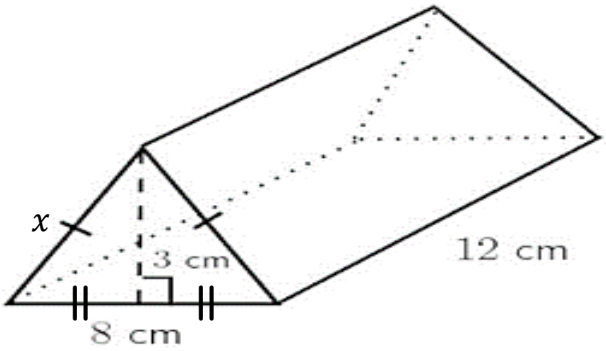
7) The following is the net of a solid.



a) Calculate the **volume** of the solid. **[1]**

b) Calculate the **surface area** of the solid. **[2]**

8) In the following prism, the triangles have a base length of $8\ cm$ and height of $3\ cm$.

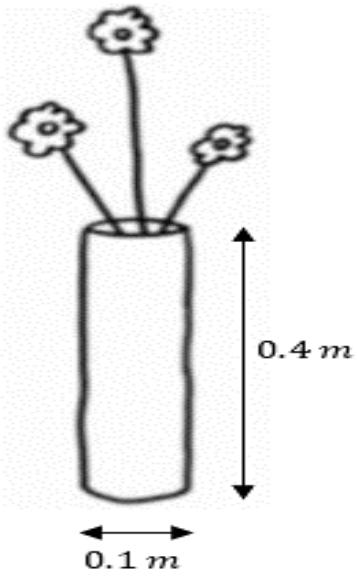


Calculate:

a) The length of side x **[2]**

b) The **surface area** of the prism **[3]**

9) The plastic cylindrical vase pictured below has $0.1\ m$ diameter and $0.4\ m$ height.



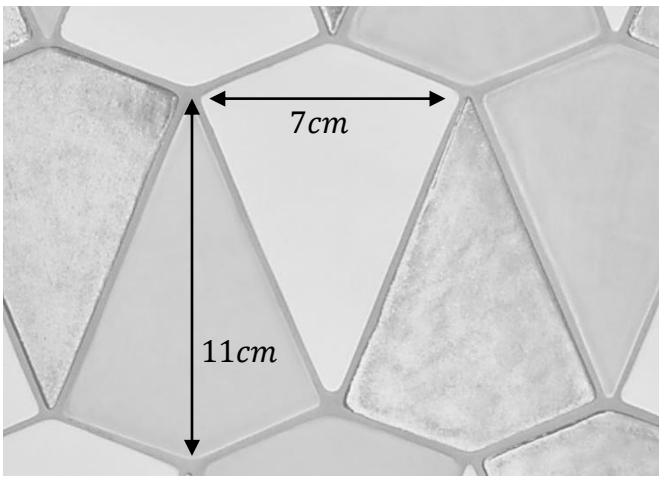
a) What is the **radius** of the base of the vase? **[1]**

b) Find the area, to 2 decimal places, of the **curved surface** of the vase. **[1]**

c) How many square metres of plastic, to 2 decimal places, is used to make the vase? **[2]**

d) How much water can the vase hold? Answer to the nearest litre. **[2]**

10) Each of these kite-shaped floor tiles have the same dimensions.



a) Calculate the **area** covered by **one** tile. **[1]**

b) *How many of these tiles will be needed to cover a $2\ m$ by $1\ m$ rectangular floor space? Assume that any gaps can be filled by cutting the tiles to size. **[3]**

c) The tiles are made of clay. If each tile needs to be $0.5\ cm$ deep, calculate the **volume** of clay needed for **one** tile. **[1]**

Linear Relationships

1) From the words written in **bold**, circle the word that best matches the statement. **[1 mark each]**

a) **Infinite / definite** means "limitless or endless".

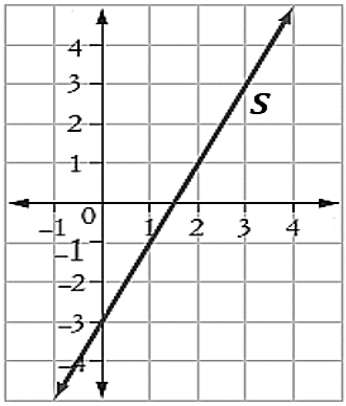
b) A **vertical / horizontal** line runs from left to right.

2) Write the equation of the line that is always 5 units to the left of the y-axis **[1]**

_____

_____

3) For the line $\boldsymbol{S}$ in the graph below, write TRUE or FALSE for each of the following statements.



[1 mark each]

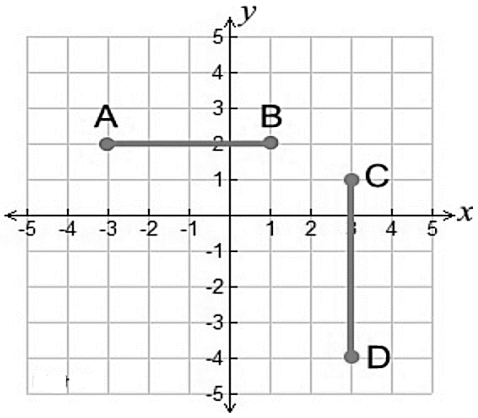
a) The line has a negative gradient. _____

b) The point $(-1,1)$ lies on the line. _____

c) The coordinates of the x-intercept is $\left(\frac{3}{2}, 0\right)$.

_____

4) Consider the following graph.



For the interval $\boldsymbol{AB}$, find the: **[1 mark each]**

a) Length _____

b) Midpoint _____

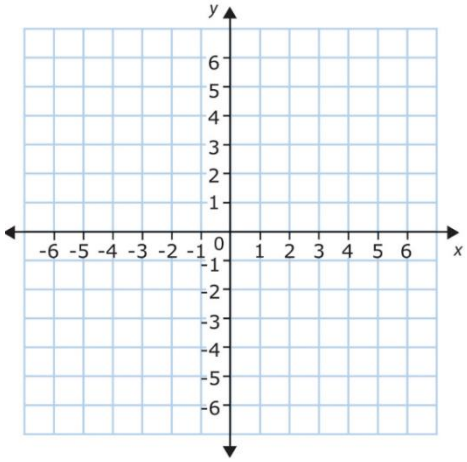
c) Gradient _____

d) Equation of the line that goes through $\boldsymbol{AB}$.

_____

5) Consider the interval joining $G(-3,4)$ and $H(5,2)$.

a) Plot and label interval GH **[2]**



Hence, or otherwise, find

b) The **midpoint** of interval GH **[2]**

_____

_____

c) The exact **length** of interval GH **[2]**

_____

_____

_____

6) Given the line with equation $y = 3x - 2$, find the:

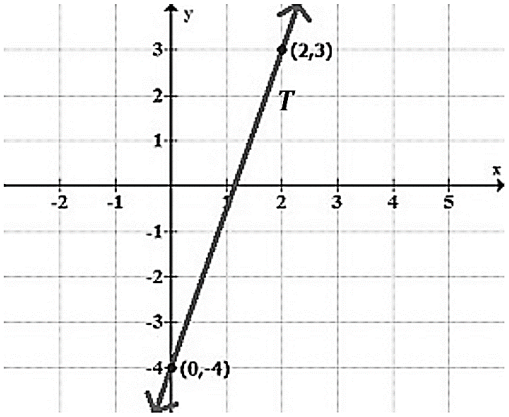
a) Gradient **[1]**

_____

b) y-intercept **[1]**

_____

7) For the line $\boldsymbol{T}$ in the graph given below, find:



a) The **gradient** of the line $\boldsymbol{T}$ **[1]**

_____

_____

b) The equation of the line $\boldsymbol{T}$, in gradient-intercept form ($y = mx + b$). **[2]**

_____

_____

_____

8) Does the point $(-4,13)$ lie on the line $y = 2x - 6$? Show all calculations. **[2]**

_____

_____

_____

_____

_____

9) Given the line with equation $y = 2 - 3x$

a) Complete the following table of values **[3]**

x	0	1	2
y			

(Working out space)

b) Find the $\boldsymbol{x}$**-intercept** of the line. **[2]**

_____

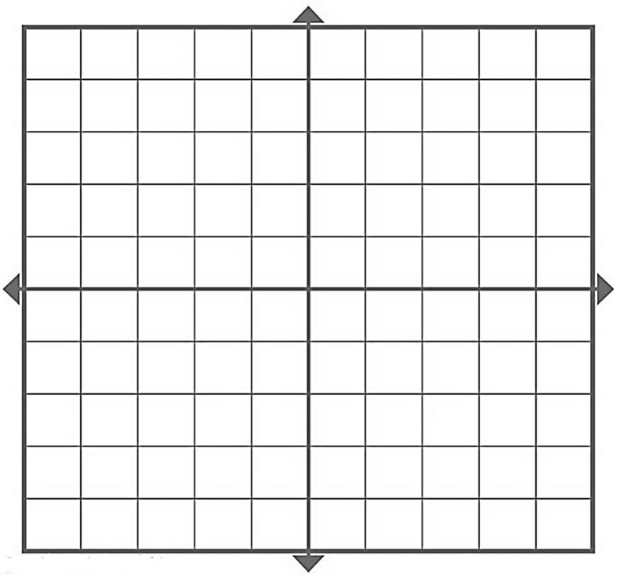
_____

_____

_____

_____

c) Graph the equation, clearly marking the intercepts. **[2]**



10) *The midpoint of interval TU is $(-14, 3.5)$.

The coordinates of T are $(7, y)$. The coordinates of U are $(x, 5)$.

Find the value of x and y. **[2]**

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_____

_____

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End of Exam