

**2<sup>nd</sup> Year Mathematics**  
**End of Year Assessment – June 2018**

**Paper 2**  
**Calculator allowed**  
**Maximum mark: 54**

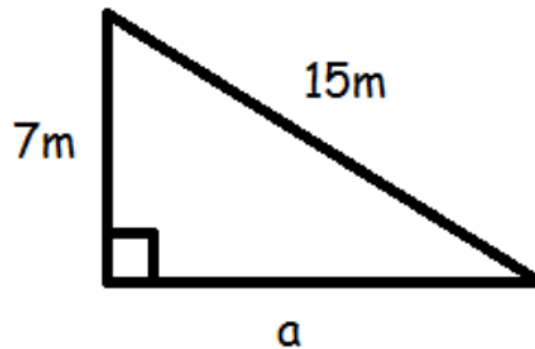
**Name** \_\_\_\_\_

**Time allowed: 1 hour**  
**Remember to show all your working out clearly**

**Mastery**

1.

Find the length of a. Give your answer to one decimal place.



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Answer: .....cm  
**(Total 3 marks)**

2. Round a) 3.16227766 to 1 decimal place

.....

b) 2.7182818 to 2 decimal places

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c) 57501300 to 1 significant figure

.....

d) 0.00060582 to 3 significant figures

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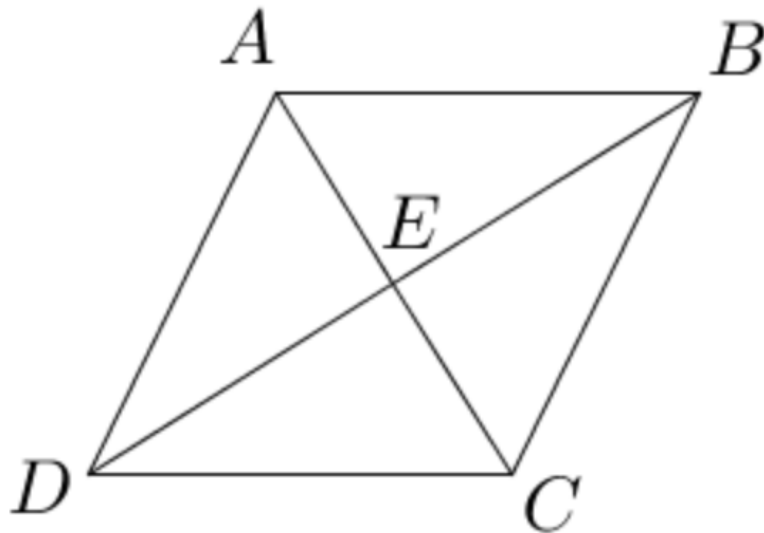
**(Total 4 marks)**

3. Write the ratio 39 : 3 in the form n : 1

.....

**(Total 1 mark)**

4. Here is a rhombus (not to scale).



Tick a box to show whether each statement is true or false.

	True	False
$AB$ is parallel to $DC$	<input type="checkbox"/>	<input type="checkbox"/>
Angle $A =$ Angle $C$	<input type="checkbox"/>	<input type="checkbox"/>
The rhombus has 2 lines of symmetry.	<input type="checkbox"/>	<input type="checkbox"/>
The rhombus has rotational symmetry of order 2.	<input type="checkbox"/>	<input type="checkbox"/>

**(Total 4 marks)**

5. a) Expand  $y(x - 5y)$

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(2)

b) Expand and simplify  $(x - 5)(x - 4)$

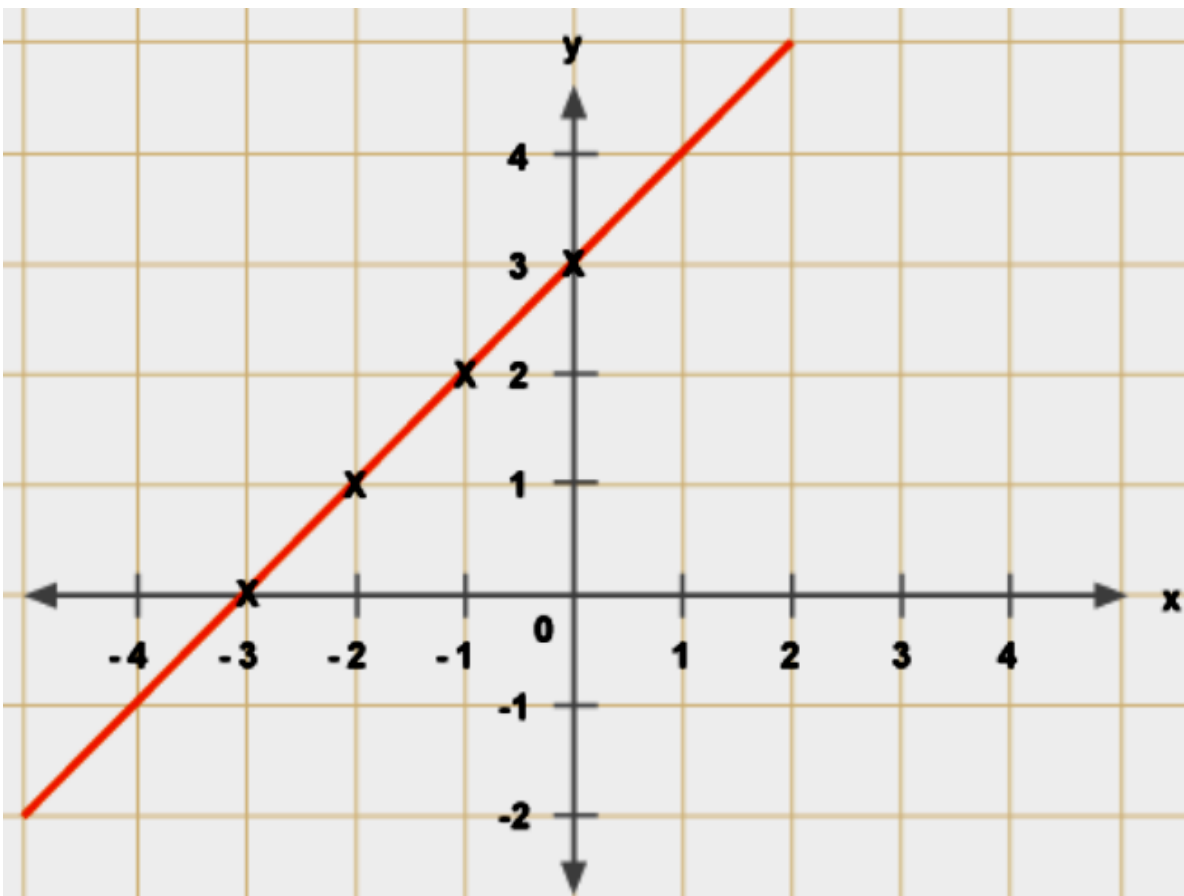
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.....(2)

Answer:

**(Total 4 marks)**

6. (a) The diagram shows the graph of the line  $y = mx + c$ .



Find the values of  $m$  and  $c$ .

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Answer  $m =$  ..... ,  $c =$  .....

(3)

(b) Write down the equation of any line that is parallel to this line.

.....  
.....

(1)

(Total 4 marks)

7. Make  $u$  the subject of each of the following formulae:

a)  $v = u + at$

**Answer:**

**(1)**

b)  $s = \frac{1}{2} (u + v)t$

**Answer: .....(2)**

**(Total 3 marks)**

8. Find the equation of the straight line that joins the points with coordinates  $(-3, 22)$  and  $(12, -23)$ .

Answer: .....

**(Total 4 marks)**

9. In February 2018 VUE Cinemas reduced the cost of a standard adult ticket from £16 to £4.99. Calculate the percentage reduction in price, giving your answer to 1 decimal place.

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Answer.....%

**(3 marks)**

## **Problem Solving**

10. King Lear has written his last will and testament and shares out his total wealth of £85,000 between his three daughters Regan, Cordelia and Goneril. Regan gets 28% of the amount and Cordelia receives  $\frac{2}{5}$  of the original sum of money. How much does Goneril receive?

Answer: £.....

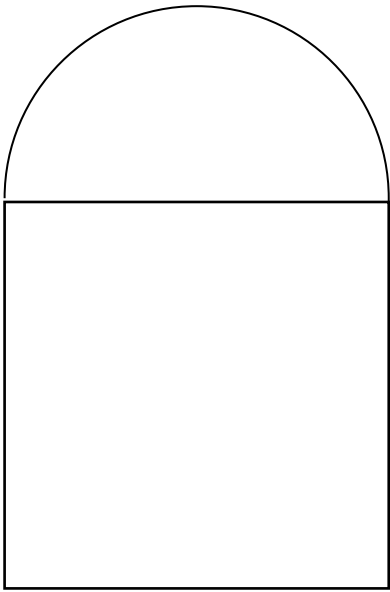
**(Total 3 marks)**

11. The area of a circle is  $66 \text{ cm}^2$ . Calculate the radius of the circle to 1 decimal place.

Answer: \_\_\_\_\_ cm

**(Total 3 marks)**

12. An artist is drawing a Minion. She starts by drawing a square of perimeter 64 cm and she then adds a semi-circle for the head as shown.



Calculate the length of perimeter (the distance around the outside) of this new shape.

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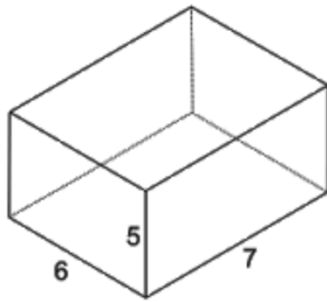
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Answer: .....cm  
**(Total 4 marks)**



13. (a) A cuboid is 7 cm long, 6 cm wide and 5 cm high as shown (not to scale).



Calculate the volume of this cuboid.

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Answer .....  $\text{cm}^3$

(2)

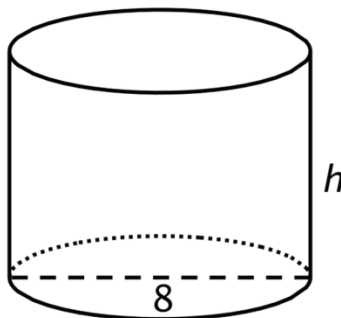
(b) Calculate the total surface area of this cuboid.

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.....  
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Answer .....  $\text{cm}^2$

(3)

(c) A cylinder whose base diameter is 8 cm has the **same** volume as the cuboid above is shown (not to scale).



Calculate the height of the cylinder (marked  $h$  on the diagram).

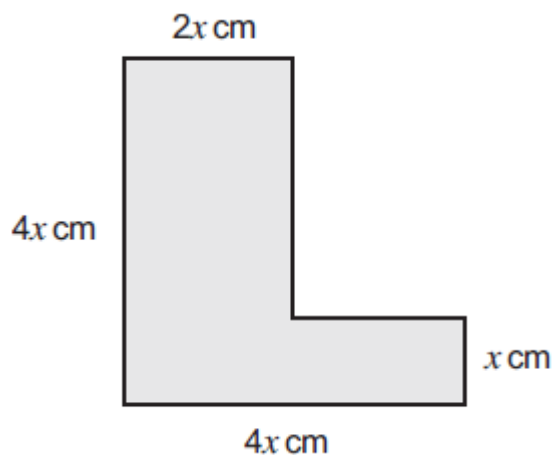
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Answer ..... cm (2)

(Total 7 marks)

14. The area of this L-shape is  $360 \text{ cm}^2$ .

Not drawn accurately



Form an equation in  $x^2$  to calculate the value of  $x$ .

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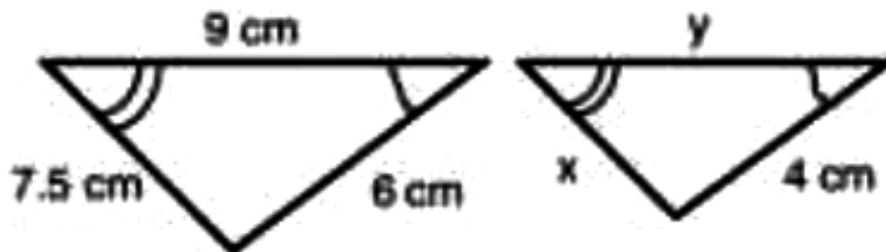
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$x =$  .....

(Total 4 marks)

15. The two triangles shown below are similar. Calculate the values of  $x$  and  $y$ .



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Answer  $x =$  .....  $y =$  ..... (3 marks)

**END OF TEST**