

Grade 8 Mathematics  
Unit 4 Examination  
Geometry

Name: \_\_\_\_\_

Section: \_\_\_\_\_

Date: \_\_\_\_\_

Time Allowed: 70 minutes

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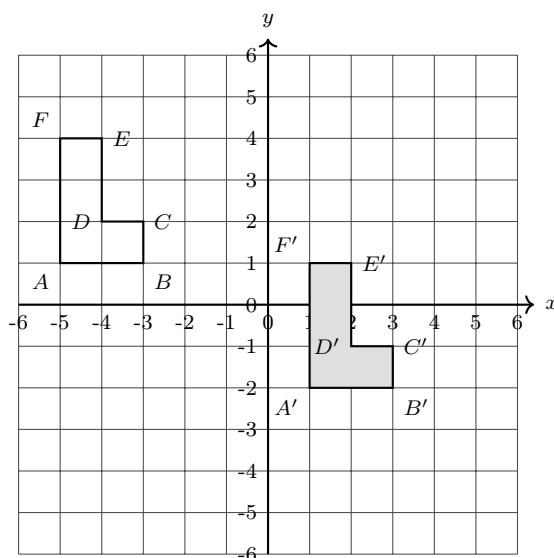
**Candidate instructions**

- Do not open this examination paper until instructed to do so.
  - Answer **all** questions.
  - Show all steps of your working — partial credit may be awarded.
  - No work shown when required will result in half the maximum credit.
  - Use correct mathematical notation and units where appropriate.
  - **Calculators are permitted.**
  - *Objects and figures are not necessarily drawn to scale unless stated otherwise.*
  - Formula sheet is provided.
- 

**Total: 44 marks**

1. State the translation that maps figure  $ABCDEF$  to figure  $A'B'C'D'E'F'$  in the form  $T(a, b)$ .

[1 mark]

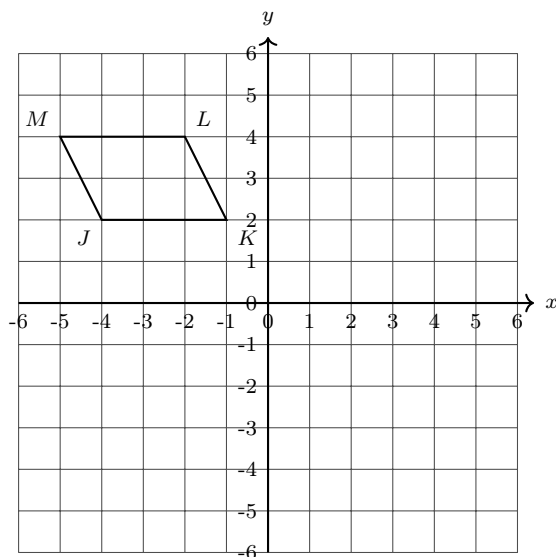


Translation: \_\_\_\_\_

2. Reflect quadrilateral  $JKLM$  across the line  $y = -1$ .

[3 marks]

- (a) Draw and label the image on the grid.  
 (b) Write the coordinates of  $J'$ ,  $K'$ ,  $L'$ ,  $M'$ .



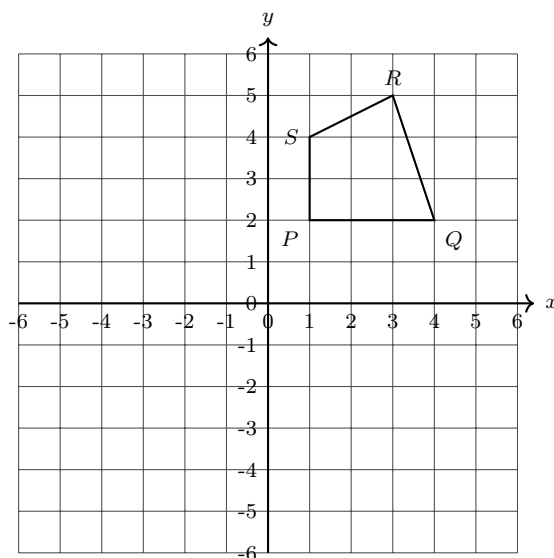
$J'$ (\_\_\_\_\_)     $K'$ (\_\_\_\_\_)     $L'$ (\_\_\_\_\_)     $M'$ (\_\_\_\_\_)

3. Reflect quadrilateral  $PQRS$  across the line  $y = -x$ .

[3 marks]

(a) Draw and label the image.

(b) State the coordinates of  $P'$ ,  $Q'$ ,  $R'$ ,  $S'$ .

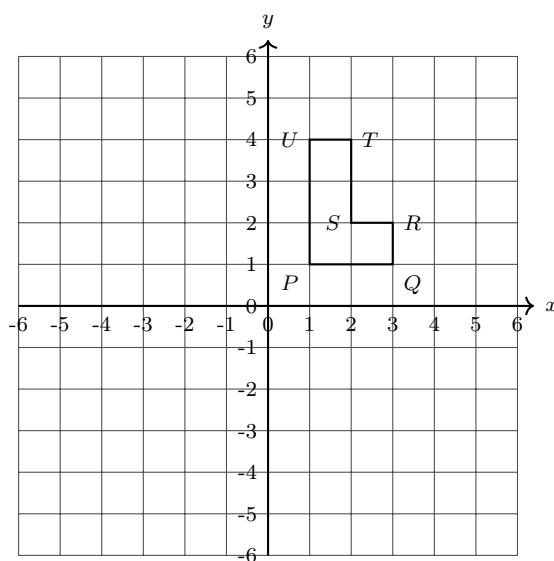


$P'(\rule{1cm}{0.4pt})$     $Q'(\rule{1cm}{0.4pt})$     $R'(\rule{1cm}{0.4pt})$     $S'(\rule{1cm}{0.4pt})$

4. Rotate figure  $PQRST$   $90^\circ$  clockwise about the origin.

[2 marks]

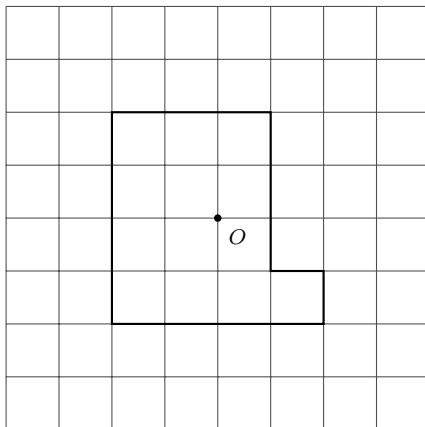
(a) Draw and label the image on the grid.



5. Dilate the shape by a scale factor of  $\frac{1}{2}$  about center  $O$ .

[2 marks]

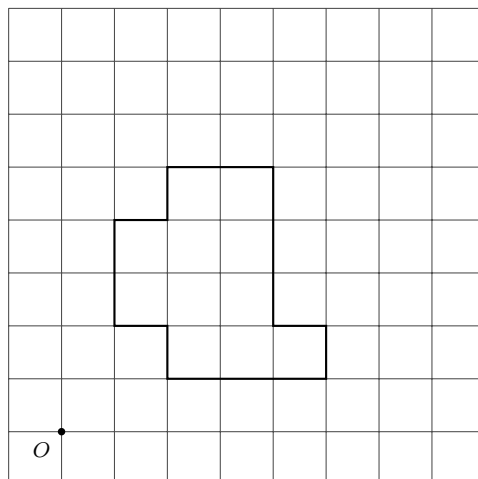
(a) Draw the image.



6. Dilate the shape by a scale factor of  $\frac{3}{2}$  about center  $O$ .

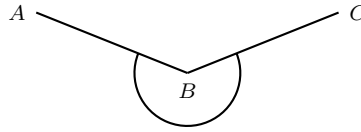
[2 marks]

(a) Draw the image.



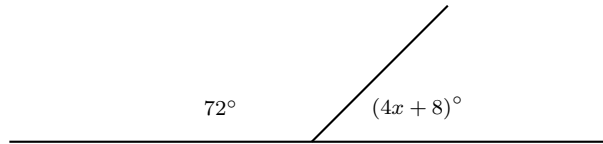
7. Write the angle shown using **3-point notation**.

[1 mark]



8. The angles lie on a straight line. Find  $x$ .

[2 marks]



9. Draw and label  $\angle XYZ$ .

[1 mark]

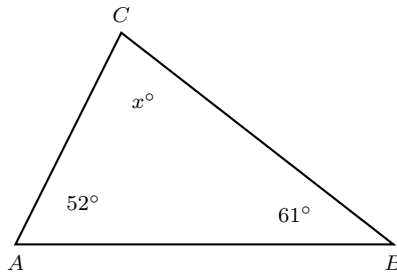
10. Solve for  $x$ .

[2 marks]

$$(3x + 15)^\circ + 95^\circ + (5x + 10)^\circ + 80^\circ = 360^\circ$$

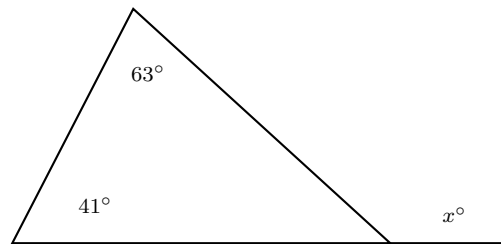
11. In  $\triangle ABC$ , find the value of  $x$ .

[1 mark]



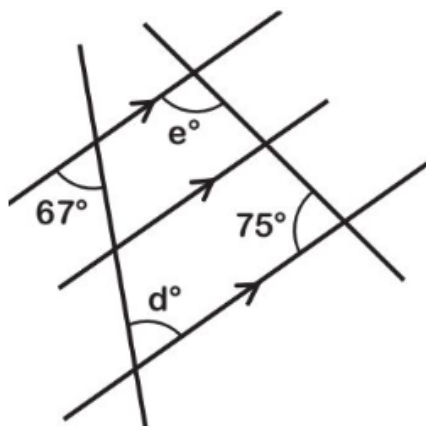
12. Find the value of  $x$ .

[2 marks]



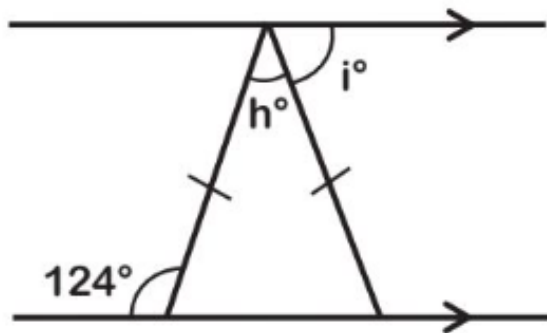
13. Find  $d$  and  $e$ .

[3 marks]



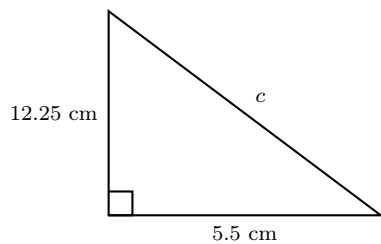
14. Find  $h$  and  $i$ .

[2 marks]



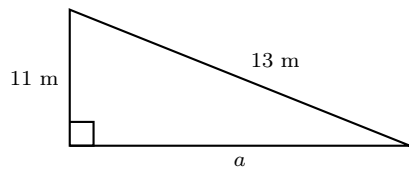
15. Find the length of the hypotenuse  $c$ . Give your answer to 1 decimal place.

[2 marks]



16. Find the missing side length  $a$ . Leave your answer as a **surd**.

[2 marks]



17. Determine whether the triangle with side lengths 8 cm, 15 cm, and 17 cm is right-angled.

[1 mark]

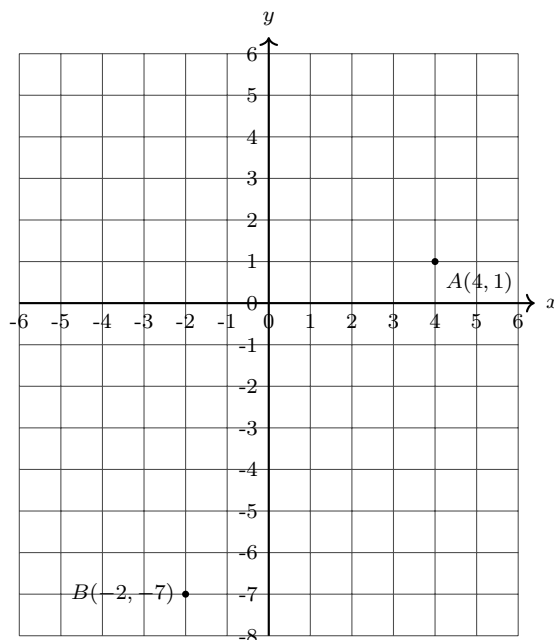
Show your reasoning clearly.

18. Find the distance between  $A(4, 1)$  and  $B(-2, -7)$ .

[2 marks]

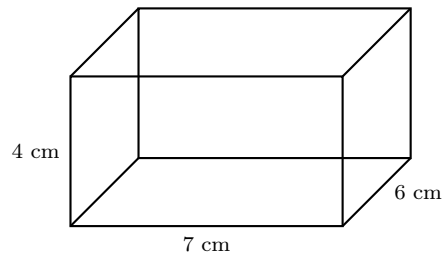
**Distance Formula:**

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



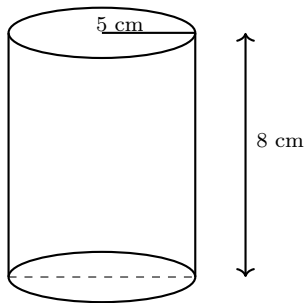
19. Find the volume of the cuboid. Include units.

[2 marks]



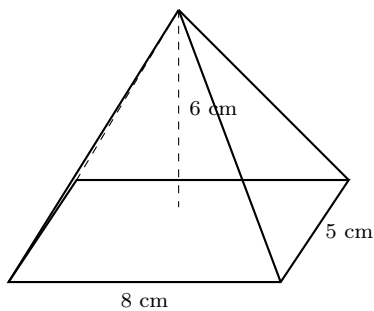
20. Find the volume of the cylinder. Give your answer to 1 decimal place. Include units.

[2 marks]



21. Find the volume of the pyramid.

[2 marks]



22. A spherical balloon has radius 7 cm. Find the volume of the balloon. [2 marks]

23. Find the volume of the prism. [2 marks]

