Geometry and transformations - Practice test 1

Name: _____ Date: _____

16 questions | 47 marks | 55 minutes

Angle reasoning, enlargement, constructions and geometric algorithms, building from short calculations to explanations.

No calculator needed.

1. A triangle has angles 62° and 48°. Find its third angle. [2 marks]

2. A quadrilateral has angles 78°, 95° and 110°. Find the fourth angle. [2 marks]

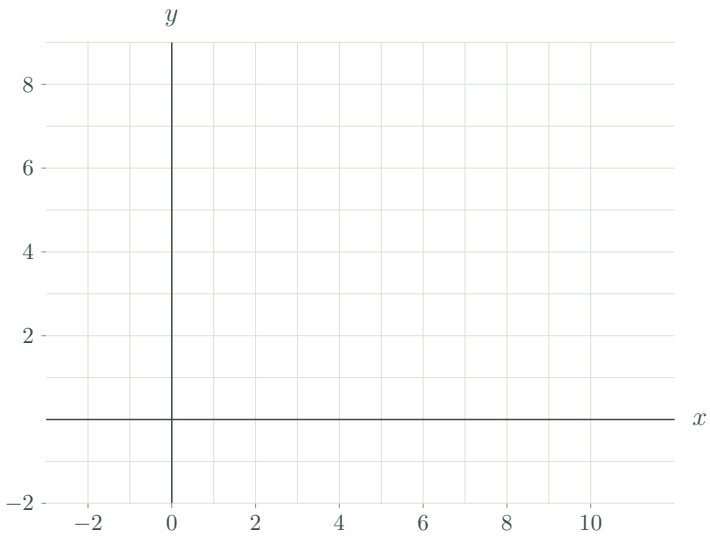
3. Find one interior angle of a regular pentagon. [2 marks]

4. Parallel lines are crossed by a transversal. One angle is 133°. Find the acute co-interior angle paired with it. [2 marks]

5. Enlarge $P(2, -3)$ by factor 3 from the origin. [2 marks]

6. Enlarge $P(4, 3)$ by factor 2 from $C(1, 2)$. [3 marks]

7. On the supplied grid, draw the image of $A(2, 2)$, $B(6, 2)$, $C(2, 4)$ under factor $\frac{1}{2}$ from the origin. [3 marks]



Each grid square represents 1 unit.

8. A figure has perimeter 18 cm and area 20 cm². It is enlarged by positive factor 1.5. [4 marks]

(a) Find its new perimeter. [2 marks]

(b) Find its new area. [2 marks]

9. Name a property preserved by enlargement and one that is not generally preserved. Explain. [3 marks]

10. Draw $AB = 8$ cm and construct its perpendicular bisector. State the compass condition. [4 marks]

11. Construct the bisector of a 74° angle and state the sizes of the new angles. [3 marks]

12. Translate $P(3, 4)$ by $(1, -2)$, then enlarge by factor 2 from the origin. Find the image. [3 marks]

13. A sorting procedure calls every quadrilateral with four equal sides a square. Give a counterexample and a sufficient extra condition. [3 marks]

14. A bisector procedure chooses radius 4 cm for a 10 cm segment. Explain the failure and repair it. [3 marks]

15. An isosceles triangle has equal base angles of 62°. Find the vertex angle and give a reason. [3 marks]

16. A rectangular courtyard is 8 m by 5 m. A similar plan enlarges all lengths by factor 1.25. [5 marks]

(a) Find the new dimensions. [2 marks]

(b) Find the new area and its percentage increase. [3 marks]