

# Geometry: 2D Shapes & Angles: Medium Practice Paper

## 3 Answers

| Q# | Answer | Explanation                                                                                                                                                                                                            |
|----|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | A      | A quadrilateral splits into 2 triangles by drawing one diagonal, and each triangle holds $180^\circ$ . So the total is $2 \times 180^\circ = 360^\circ$ .                                                              |
| 2  | B      | The triangle is isosceles, so the two base angles are equal. They share $180^\circ - 100^\circ = 80^\circ$ , so $x = 80^\circ \div 2 = 40^\circ$ .                                                                     |
| 3  | E      | The interior angles add up to $(5 - 2) \times 180^\circ = 540^\circ$ . The pentagon is regular, so each angle is $540^\circ \div 5 = 108^\circ$ .                                                                      |
| 4  | B      | All four angles sit on a straight line and add up to $180^\circ$ . Since $35^\circ + 45^\circ + 55^\circ = 135^\circ$ , $x = 180^\circ - 135^\circ = 45^\circ$ .                                                       |
| 5  | D      | The angle in the matching position at the lower crossing is also $48^\circ$ (corresponding angles). Angle $x$ is next to it on a straight line, so $x = 180^\circ - 48^\circ = 132^\circ$ .                            |
| 6  | D      | Angles around a point add to $360^\circ$ , so $2x + 3x + 4x = 360^\circ$ , giving $9x = 360^\circ$ and $x = 40^\circ$ . The largest angle is $4x = 4 \times 40^\circ = 160^\circ$ .                                    |
| 7  | B      | The exterior angles of any polygon add up to $360^\circ$ . A regular hexagon has 6 of them, so each is $360^\circ \div 6 = 60^\circ$ .                                                                                 |
| 8  | D      | A regular polygon looks the same as many times in a full turn as it has sides, so a regular hexagon has rotational symmetry of order 6.                                                                                |
| 9  | D      | The two angles together make one full turn of $360^\circ$ , so the reflex angle is $360^\circ - 110^\circ = 250^\circ$ .                                                                                               |
| 10 | C      | At 9:30 the minute hand points at 6. The hour hand is half way between 9 and 10, so it is $3\frac{1}{2}$ hour marks from the 6. Each mark is $30^\circ$ , so the angle is $3\frac{1}{2} \times 30^\circ = 105^\circ$ . |
| 11 | C      | The exterior angles always add up to $360^\circ$ , however many sides there are. With 12 equal angles, each one is $360^\circ \div 12 = 30^\circ$ .                                                                    |

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| 12 | E | Use $(n - 2) \times 180^\circ$ with $n = 10$ : $(10 - 2) \times 180^\circ = 8 \times 180^\circ = 1440^\circ$ .                                              |
| 13 | D | The $65^\circ$ angle and $x$ sit next to each other on a straight line, so they add up to $180^\circ$ . That gives $x = 180^\circ - 65^\circ = 115^\circ$ . |
| 14 | C | The angles of a quadrilateral add up to $360^\circ$ . Here $75^\circ + 110^\circ + 110^\circ = 295^\circ$ , so $x = 360^\circ - 295^\circ = 65^\circ$ .     |
| 15 | A | A diagonal joins two corners that are not already joined by a side. In a quadrilateral each corner joins to just one other, giving 2 diagonals in total.    |