Geometry: 2D Shapes & Angles: Medium Practice Paper 8 Answers

Q#	Answer	Explanation
1	C	Angles at a point add up to 360°. The two known angles come to 100 + 60 = 160, leaving 360 − 160 = 200 degrees for 2x and 3x together, which is 5x. So x is 200 ÷ 5 = 40.
2	D	The three angles add up to 180°, and together they make 2x + 3x + 4x = 9x. So x is 180 ÷ 9 = 20 degrees. The largest angle is 4x, which is 20 × 4 = 80 degrees.
3	C	The interior and exterior angles at a vertex add up to 180°. If the interior is twice the exterior then the two together are three lots of the exterior, so the exterior angle is 180 ÷ 3 = 60 degrees. The number of sides is then 360 ÷ 60 = 6.
4	C	Drawing diagonals from one corner splits a 12-sided shape into 10 triangles, which is always 2 fewer than the number of sides. Each triangle holds 180°, so the total is 10 × 180 = 1800 degrees.
5	D	The 63° angle and angle x sit next to each other on a straight line, so together they make 180°. That gives x = 180 − 63 = 117 degrees.
6	D	The 68° angle sits above the top line on the right, and angle x sits above the bottom line on the left. The angle matching 68° at the lower crossing is on the right, and x sits next to it on a straight line, so x = 180 − 68 = 112 degrees.
7	C	The three angles lie on a straight line, so they add up to 180°. Taking off the 55° leaves 180 − 55 = 125 degrees for 2x and 3x together, which is 5x. So x is 125 ÷ 5 = 25.
8	B	At half past five the minute hand points straight down, at 180° from the top. The hour hand has travelled half way from 5 to 6, so it sits at 165° from the top. The angle between them is 180 − 165 = 15 degrees.

myfreeschool

9	D	Each exterior angle of a regular nonagon is 360 ÷ 9 = 40 degrees. The interior angle sits next to it on a straight line, so it is 180 − 40 = 140 degrees.
10	E	For a shape to tile flat, copies of its angles must fit exactly round a point. The regular pentagon's interior angle is 108°, and three of them make 324° while four make 432°, so there is always a gap or an overlap. The other four all fit exactly.
11	A	Turning a square about its centre brings it back onto itself four times in a full turn, once every quarter turn, so its order is 4. The rectangle and rhombus are order 2, the equilateral triangle is order 3 and the regular hexagon is order 6.
12	C	The minute hand goes right round, 360°, in 60 minutes, so in one minute it turns 360 ÷ 60 = 6 degrees. In 25 minutes it turns 6 × 25 = 150 degrees.
13	C	The ratio splits the quadrilateral's 360° into 2 + 3 + 3 + 4 = 12 equal shares, so one share is 360 ÷ 12 = 30 degrees. The largest angle is 4 shares, which is 30 × 4 = 120 degrees.
14	B	Vertically opposite angles are always equal, so 2x + 10 must be 70. Taking the 10 away leaves 2x equal to 60, so x is 60 ÷ 2 = 30.
15	E	An equilateral triangle folds onto itself from each of its three corners to the middle of the opposite side, giving 3 lines. An isosceles triangle has only 1, a square has 4, a rhombus has 2 and a regular pentagon has 5.

myFreeSchool