Geometry: 2D Shapes & Angles: Medium Practice Paper 7 Answers

Q#	Answer	Explanation
1	D	The cross can be folded onto itself in four ways: straight down the middle, straight across the middle, and along each of the two diagonals. That gives 4 lines of symmetry.
2	A	The kite folds onto itself only along the diagonal joining its two unequal corners, so it has just 1 line of symmetry. The square has 4, the rectangle and rhombus have 2 each, and the parallelogram has none.
3	B	Angles a and c sit directly opposite each other across the crossing point, so they are vertically opposite angles and are always equal. Angles a and b sit next to each other on a straight line, so those two add up to 180° instead.
4	B	Angles a and b lie between the two parallel lines and on the same side of the sloping line. A pair like this always adds up to 180°, because b is equal to the angle vertically opposite it, which sits next to a on a straight line.
5	D	The third angle of the triangle is 180 − 35 − 85 = 60 degrees. The exterior angle sits next to it on a straight line, so it is 180 − 60 = 120 degrees. It is also the two opposite angles added together, since 35 + 85 = 120.
6	C	The exterior angles of any polygon add up to 360°, and in a regular polygon they are all the same size. So the number of sides is 360 ÷ 24 = 15.
7	C	From one corner you can reach every corner except itself and the two beside it, which gives 5 diagonals. Those 5 diagonals cut the octagon into 6 triangles, which is always 2 fewer than the number of sides.
8	C	At half past, the minute hand points straight down at 180° from the top. The hour hand has moved half way from 1 to 2, so it sits at 45° from the top. The angle between them is 180 − 45 = 135 degrees.

myfreeschool

9	D	The angle and its reflex angle together make one full turn, which is 360°. So the reflex angle is 360 − 145 = 215 degrees, and being over 180° it really is reflex.
10	D	The angles lie on a straight line, so they add up to 180°. Taking off the 72° leaves 180 − 72 = 108 degrees for x and 2x together, which is 3x. So x is 108 ÷ 3 = 36.
11	B	The four angles of a quadrilateral add up to 360°. The three given angles come to 68 + 94 + 117 = 279, so the fourth is 360 − 279 = 81 degrees.
12	A	Two of the angles are the same, so two sides are equal and the triangle is isosceles. The 100° angle is bigger than a right angle but less than a straight line, so it is obtuse, making the triangle obtuse-angled as well.
13	D	A regular polygon always has as many lines of symmetry as it has sides. With 12 sides there are 12 lines: 6 running from corner to opposite corner and 6 running from the middle of one side to the middle of the opposite side.
14	C	A pentagon splits into 3 triangles, so its angles add up to 3 × 180 = 540 degrees. All 5 angles of a regular pentagon are equal, so each one is 540 ÷ 5 = 108 degrees.
15	E	The two diagonals of a rectangle are always the same length, but unless the rectangle happens to be a square they meet at an angle that is not a right angle. A square has equal diagonals that do cross at right angles, while a rhombus and a kite have diagonals crossing at right angles but of different lengths.

myfreeschool