WONDERLEARNERZ PRIMARY ACADEMY â€" OFFICIAL ANSWER KEY & MARKING SCHEME

Symmetry - Worksheet 3 [ANSWER KEY]

Grade 4 | Mathematics | Ch 17: Symmetry | Total Marks: 19 | Time: 30 Minutes

Q1. How many lines of symmetry does a standard square have? [1 Mark]

Correct Answer: 4 lines of symmetry

Explanation: A square has 4 lines of symmetry (1 vertical, 1 horizontal, 2 diagonals).

Q2. How many lines of symmetry does a non-square rectangle have? [1 Mark]

Correct Answer: 2 lines of symmetry

Explanation: A rectangle has 2 lines of symmetry (vertical and horizontal). Diagonals are not lines of symmetry.

Q3. Which of the following capital letters has both a horizontal and a vertical line of symmetry? [1 Mark]

Correct Answer: H

Explanation: The letter 'H' can be folded in half horizontally and vertically.

Q4. How many lines of symmetry does a scalene triangle have (all sides different)? [1 Mark]

Correct Answer: 0 lines of symmetry

Explanation: A scalene triangle has no equal sides or angles, so it has 0 lines of symmetry.

Q5. At the Geometric Design Lab, an artisan creates a Rectangle Window Frame. If it possesses 2 lines of symmetry, how many equal reflection sectors are created when all lines are drawn? [1 Mark]

Correct Answer: 4 sectors

Explanation: Each line of symmetry divides the shape into halves; 2 lines divide it into 4 congruent sectors.

Q6. An artist draws the left half of a symmetrical vase on grid paper. The widest point is 6 units to the left of the center line. How wide is the completed vase from left edge to right edge? [1 Mark]

Correct Answer: 12 units

Explanation: Reflective symmetry doubles the width: 6 x 2 = 12 units wide.

Q7. A road safety crew paints a triangular hazard sign that has 3 equal sides and 3 equal angles. How many lines of symmetry does the sign have? [1 Mark]

Correct Answer: 3 lines of symmetry

Explanation: An equilateral triangle has 3 lines of symmetry.

Q8. A regular polygon has equal sides and 5 lines of symmetry. Which polygon is this? [1 Mark]

Correct Answer: Regular Pentagon

Explanation: A regular pentagon has 5 equal sides and exactly 5 lines of symmetry.

Q9. On a grid with a vertical mirror line at x = 5, a point is drawn at x = 2 (3 units left). What x-coordinate is its reflected image? [1 Mark]

Correct Answer: x = 8

Explanation: Mirror line is at 5. Distance is 5 - 2 = 3. Reflected point is at 5 + 3 = 8.

Q10. Hannah folds a rectangular paper along its diagonal and says: 'The diagonal is a line of symmetry because the two halves are congruent triangles.' What is her mistake? [1 Mark]

Correct Answer: Although the triangles are congruent, they do not match up when folded along the diagonal; edges stick out

Explanation: For a line of symmetry, the two halves must match up identically upon folding along the line.

Q11. Dev says: 'A circle has only 4 lines of symmetry: vertical, horizontal, and two diagonals.' Why is Dev wrong? [1 Mark]

Correct Answer: A circle has an infinite (unlimited) number of lines of symmetry passing through its center

Explanation: Any straight line passing through the center of a circle is a line of symmetry; there are infinitely many such lines.

Q12. Why does an isosceles triangle have exactly 1 line of symmetry, whereas an equilateral triangle has 3? [2 Marks]

Correct Answer: An isosceles triangle has only 2 equal sides, so only the line between those two sides creates matching halves

Explanation: The single line of symmetry in an isosceles triangle splits the angle between the two equal sides.

Q13. If you fold a paper shape twice (once horizontally and once vertically) and punch a single hole through all layers, how many holes will appear when unfolded? [2 Marks]

Correct Answer: 4 holes

Explanation: Folding twice doubles the layers twice (1 -> 2 -> 4 layers), producing 4 holes upon unfolding.

Q14. Which of the following digits has BOTH a horizontal line of symmetry and a vertical line of symmetry when written in standard block font? [2 Marks]

Correct Answer: 8

Explanation: The digit '8' (and '0') has both vertical and horizontal symmetry in standard symmetrical block font.

Q15. A square tile with side 10 cm has a symmetrical pattern. If one quarter of the tile contains a shaded area of 14 cmÂ², what is the total shaded area of the complete tile? [2 Marks]

Correct Answer: 56 cmÂ²

Explanation: Because the pattern is symmetrical across four quarters: 14 cmÂ² x 4 = 56 cmÂ².