Grade 5 Math Assessment: Coordinates in Four Quadrants

Learning objective: To accurately plot, read, and translate coordinates across all four quadrants of a Cartesian plane.

Read each question carefully. Show your working out where possible. You may use a ruler for drawing shapes on the grid.

Max the monkey is helping his friends map out a new garden area. He uses a coordinate grid where the origin (0,0) is the center of the vegetable patch. Each unit on the grid represents 1 meter.

Word bank: x-axis · y-axis · quadrant · origin · translation · reflection · coordinate · vertex

1. Max places a watering can at (-3, 4) and a trowel at (2, 4). How many metres apart are these two items? Explain how you found your answer. (2 marks)

2. Write down the coordinates of the origin and explain what happens to the signs of the x and y values as you move from the first quadrant to the third quadrant. (3 marks)

3. A square has vertices at (1, 1), (1, 3), (3, 3) and (3, 1). If Max translates this square 4 units left and 2 units down, what are the new coordinates of the four vertices? (4 marks)

4. Pip the caterpillar is crawling along a line segment. He starts at (-2, -2) and moves to (2, 2). What is the midpoint of Pip's journey? (3 marks)

5. Zara the zebra draws a triangle with vertices at (-1, 2), (2, 2) and (0, 5). She reflects this triangle across the y-axis. List the coordinates of the new triangle and describe the change in the x-coordinates. (4 marks)

6. Extended Writing Task: Imagine you are designing a park grid. Create a set of instructions for a friend to draw a complex shape (a pentagon or hexagon) on a four-quadrant grid. You must include the starting coordinates, the translations required, and how to identify if a point lies on an axis. Use mathematical vocabulary to explain your design process. (9 marks)

Draw: Draw a set of axes ranging from -5 to 5 on both the x and y axes. Plot the points A(-2, 3), B(4, 3), and C(1, -2) and join them to form a triangle.

Extension challenge: Total: /25