Graphing Tables Worksheet: Turn Input-Output Tables into Coordinate Graphs

Original tasks 1, 2, 3 / complete keys

Task 1

Table: input 1, 2, 3, 4; output 4, 6, 8, 10. Write the ordered pairs, state whether the points are collinear, and describe the pattern.

Answer: Ordered pairs: (1, 4), (2, 6), (3, 8), (4, 10). The points are collinear. Pattern: output increases by 2 for each increase of 1 in input.

Reason: Each row gives one pair. The output changes by +2 each time the input changes by +1, so the points lie on a straight line.

Check: Subtract consecutive outputs: 6-4=2, 8-6=2, 10-8=2. Constant change confirms collinearity.

Task 2

Table: input 0, 2, 4, 6; output 3, 3, 3, 3. Write the ordered pairs and describe the graph without plotting.

Answer: Ordered pairs: (0, 3), (2, 3), (4, 3), (6, 3). The points lie on a horizontal line at y = 3. Pattern: output stays 3 for every input.

Reason: All outputs are equal, so every point has the same y-coordinate. A constant y-value produces a horizontal line.

Check: Confirm every output equals 3 and every ordered pair has y = 3.

Task 3

Table: input 1, 2, 3, 4; output 2, 5, 8, 11. A student plots (2, 5) as 2 units up and 5 units right. Explain the error and give the correct plotting move for (2, 5).

Answer: The student reversed the coordinates. The correct move for (2, 5) is 2 units right along the x-axis, then 5 units up parallel to the y-axis.

Reason: Ordered pairs are (input, output), so input is the x-coordinate and output is the y-coordinate. Moving up first uses output as x, which is reversed.

Check: Read the plotted point back: from the origin, count right 2 and up 5; the point should be (2, 5).

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Original tasks 4 / complete keys

Task 4

Table: input 0, 1, 2, 3; output 5, 4, 3, 2. Write the ordered pairs, state whether the points are collinear, and describe the pattern.

Answer: Ordered pairs: (0, 5), (1, 4), (2, 3), (3, 2). The points are collinear. Pattern: output decreases by 1 for each increase of 1 in input.

Reason: The output changes by -1 each time the input changes by +1, so the points lie on a straight line sloping downward.

Check: Subtract consecutive outputs: 4-5=-1, 3-4=-1, 2-3=-1. Constant change confirms collinearity.

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Source rubric / reflection

- [ ] All ordered pairs are written as (input, output) and match the table rows.
- [ ] Each point is plotted at the correct coordinates on a labeled grid with a stated scale.
- [ ] Points are connected with one straight line only when collinear; otherwise left separate with a described pattern.
- [ ] The pattern is stated in simple arithmetic, such as 'output increases by 2 for each increase of 1 in input'.
- [ ] Axis labels, origin, and scale are correct and readable.
- [ ] Valid alternative: a neatly drawn point set with a described pattern earns credit even if the line is not extended beyond the plotted points, provided the description is correct.

Reflection: What did you check, what did you change, and what will you try next?