Classify Slope Type from Two Points: Positive, Negative, Zero, or Undefined

Original tasks 1, 2, 3, 4 / complete keys

Task 1

Classify the slope type for the points (2, 3) and (8, 11).

Answer: Positive

Reason: The smaller x-value is 2. As x increases from 2 to 8, y increases from 3 to 11. Since y increases as x increases, the slope is positive.

Check: Confirm x-values differ and y-values differ. Compare y at the larger x: 11 is greater than 3, so positive.

Task 2

Classify the slope type for the points (5, 9) and (1, 4).

Answer: Positive

Reason: Order by x: start at (1, 4) and move to (5, 9). As x increases from 1 to 5, y increases from 4 to 9. Therefore the slope is positive.

Check: After ordering, verify that the y-value at the larger x (9) is greater than the y-value at the smaller x (4). Greater means positive.

Task 3

Classify the slope type for the points (3, 6) and (3, 12).

Answer: Undefined

Reason: Both points have the same x-value, 3. The line is vertical, so the change in x is zero. Slope is undefined.

Check: Check equality of x-values first. Since 3 equals 3, classify as undefined without comparing y-values.

Task 4

Classify the slope type for the points (-2, 7) and (4, 7).

Answer: Zero

Reason: Both points have the same y-value, 7. The line is horizontal, so the change in y is zero. Slope is zero.

Check: Check equality of y-values after confirming x-values differ. Since 7 equals 7, classify as zero.

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Source rubric / reflection

- [ ] Correctly identifies the smaller x-value and uses it as the starting point.
- [ ] Checks for equal x-values before other comparisons; if equal, classifies as undefined.
- [ ] Checks for equal y-values next; if equal, classifies as zero.
- [ ] Compares the direction of y-change as x increases and states positive or negative accordingly.
- [ ] Provides a brief reason that references the coordinate comparison, not just the final label.
- [ ] Uses consistent left-to-right reading; does not reverse the slope type by reading right to left.
- [ ] Handwriting and letter style are not graded; any legible notation that communicates the classification and reasoning is acceptable.

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