Slope Rules for Parallel and Perpendicular Lines: Worksheet Design

Rubric

Five rubric criteria from the source.

Computes both slopes correctly and reduces fractions.

Shows the comparison arithmetic: equality or product equal to negative one.

Classifies as parallel, perpendicular, or neither with a clear label.

Handles special vertical or horizontal cases explicitly when present.

Handwriting is legible under the baseline-to-midline x-height convention; valid alternative letter styles are accepted.

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Complete worked example / separate answer key

Line A passes through (1, 2) and (4, 8). Line B has equation y = 2x - 5. Determine whether the lines are parallel, perpendicular, or neither.

Answer: Slope of A is (8 - 2) divided by (4 - 1) = 6 divided by 3 = 2. Slope of B is 2. The slopes are equal, so the lines are parallel.

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

Task 1

Line P has equation y = 3x + 1. Line Q has equation y = 3x - 4. Classify the pair.

Answer: Parallel.

Reason: Both slopes are 3. Equal slopes mean parallel lines.

Check: Compare the coefficients of x: 3 and 3 are equal.

Task 2

Line R passes through (0, 0) and (2, 6). Line S passes through (1, 1) and (3, 7). Classify the pair.

Answer: Parallel.

Reason: Slope of R is (6 - 0) divided by (2 - 0) = 3. Slope of S is (7 - 1) divided by (3 - 1) = 3. Equal slopes mean parallel.

Check: Compute both slopes and confirm they reduce to the same value.

Task 3

Line T has slope negative two thirds. Line U has slope three halves. Classify the pair.

Answer: Perpendicular.

Reason: The product of the slopes is negative two thirds times three halves = negative one. Negative reciprocal slopes mean perpendicular lines.

Check: Multiply the slopes and confirm the product is negative one.

Task 4

Line V has equation y = 4x + 2. Line W has equation y = negative 4x + 2. Classify the pair.

Answer: Neither.

Reason: The slopes are 4 and negative 4. They are not equal, so not parallel. Their product is negative 16, not negative one, so not perpendicular.

Check: Test equality and then test the product; both tests fail.

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Worked example, Task 1, Task 2, Task 3, Task 4 / Separate Answer Key

Slope computations, comparison arithmetic, classifications, and check methods.

Item	Slope 1	Slope 2	Comparison / Check
Worked example	2	2	Equal slopes; parallel.
1	3	3	Equal; parallel.
2	3	3	Equal; parallel.
3	-2/3	3/2	Product = -1; perpendicular.
4	4	-4	Not equal; product = -16; neither.

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Source rubric / reflection

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