## Name:

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## Parallel and Perpendicular Lines

Parallel lines are distinct lines lying in the same plane that never intersect each other. Perpendicular lines are lines that intersect each other at right angles.


Parallel lines


Perpendicular lines

Mikey draws a line segment from $(-3,-3)$ to $(2,6)$. He then draws a line segment from $(-2,-5)$ to $(3,4)$. If he wants to draw another line segment that is parallel to those two segments, what points will he use? What about a line that is perpendicular?

|  |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 |  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  |  |  |  |  |  |  |  | -1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -2 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -3 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -4 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -5 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -6 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -7 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | -8 |  |  |  |  |  |  |  |  |  |

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Parallel lines


Perpendicular lines

In each quadrant, determine if the two line segments are parallel, perpendicular, or neither. Explain why.


Quadrant 1: Line AB is $\qquad$ to Line CD because $\qquad$
Quadrant 1: Line EF is $\qquad$ to Line CH because $\qquad$
Quadrant 1: Line II is $\qquad$ to Line KL because $\qquad$
Quadrant 1: Line $M N$ is $\qquad$ to Line OP because $\qquad$

