

Line Pair Detectives

Sort line pairs, prove your thinking, and create your own.

CCSS.Math.Content.4.G.A.1 "Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures."

NAME _____

DATE _____

PARALLEL LINES

Parallel lines stay the same distance apart. They never meet, even if the lines keep going.

The two skis in a pair lie side by side.

PERPENDICULAR LINES

Perpendicular lines meet to make right angles. A right angle is a square corner.

The two strokes in a capital T make right angles.

1 SORT _____ 8 items

Part 1 SORT: Circle the tag that names each pair of lines, then Part 2 PROVE IT: choose two item numbers and use the answer lines to explain what you noticed about each pair. Item ____: _____ Item ____: _____

- | | | |
|---|--------------------------------|-------------------------------------|
| 1. Two sides of a highway lane that never meet | ☐ PARALLEL | ☐ PERPENDICULAR |
| 2. The hands of a clock at 3:00 | ☐ PARALLEL | ☐ PERPENDICULAR |
| 3. Opposite sides of a parallelogram | ☐ PARALLEL | ☐ PERPENDICULAR |
| 4. Two lines that cross and form four right angles | ☐ PARALLEL | ☐ PERPENDICULAR |
| 5. Two horizontal lines on a sheet of graph paper | ☐ PARALLEL | ☐ PERPENDICULAR |
| 6. Two adjacent sides of a square | ☐ PARALLEL | ☐ PERPENDICULAR |
| 7. Two straight paths that stay the same distance apart | ☐ PARALLEL | ☐ PERPENDICULAR |
| 8. The opposite sides of a rectangular picture frame | ☐ PARALLEL | ☐ PERPENDICULAR |

2 PROVE IT Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ HOW I KNEW _____

ITEM # _____ HOW I KNEW _____

3 MAKE YOUR OWN One of each

Part 3 MAKE YOUR OWN: Write one new example of parallel lines and one new example of perpendicular lines.

PARALLEL

PERPENDICULAR

CHALLENGE

Draw a four-sided figure with one pair of parallel sides and one pair of perpendicular sides. Mark the parallel pair with matching arrows and mark one right angle with a small square.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	Two sides of a highway lane that never meet	PARALLEL	The sides remain the same distance apart and do not meet.
2	The hands of a clock at 3:00	PERPENDICULAR	The hands form a right angle.
3	Opposite sides of a parallelogram	PARALLEL	Opposite sides of a parallelogram are parallel.
4	Two lines that cross and form four right angles	PERPENDICULAR	Lines that form right angles are perpendicular.
5	Two horizontal lines on a sheet of graph paper	PARALLEL	The horizontal lines stay the same distance apart and never meet.
6	Two adjacent sides of a square	PERPENDICULAR	Adjacent sides of a square meet at a right angle.
7	Two straight paths that stay the same distance apart	PARALLEL	Lines that stay the same distance apart do not meet.
8	The opposite sides of a rectangular picture frame	PARALLEL	Opposite sides of a rectangle are parallel.

PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **PARALLEL:** Parallel lines: The two side edges of a ruler.
- **PERPENDICULAR:** Perpendicular lines: Two adjacent sides of a rectangular book cover.

Challenge: A right trapezoid with its top and bottom sides marked with matching arrows and a small square at the bottom-left right angle.

For Part 2, accept explanations that name the same-distance-and-never-meet rule for parallel lines or the right-angle rule for perpendicular lines. For Part 3, accept any accurate new examples that are different from the worksheet examples.