**Parallel and Perpendicular Lines**

**Graph.**

1. y = 3x + 1 2. y = x

y = 3x – 4 y = x + 3

**Observations:**

The lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The slopes of the lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

# Parallel lines have the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.

3. Write an equation of a line parallel to y = −3x − 2 that passes through the point (−1, 4).

Graph both lines.

**\*A point is given, so need to**

**find m to use y-y1 = m(x-x1)**

**\*Use given equation to find m**

**\*Write final answer in**

**“y = mx + b” form**

4. Write an equation of a line parallel to 3x **−** 2y = 8 that passes through the point (**−**2, 1).

Graph both lines.

**Graph.**

5. y = 2x + 3 6. y = **−**x + 1

y = **−**x **−** 1 y = x **−** 2

**Observations:**

The lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The slopes of the lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Perpendicular lines have an \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ slope.

Given: 2x − 5y = 10 parallel: m = \_\_\_\_\_\_\_\_\_

perpendicular: m = \_\_\_\_\_\_\_\_\_

7. Write an equation of a line that passes through (2, **−**2) and is perpendicular to

2x + y = 5. Graph both lines.

**ANSWERS Parallel and Perpendicular Lines**

**Graph.**

1. y = 3x + 1 2. y = x

y = 3x – 4 y = x + 3

**Observations:**

The lines are \_\_\_\_\_\_\_\_PARALLEL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The slopes of the lines are \_\_\_\_\_\_\_THE SAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

# Parallel lines have the \_\_SAME \_\_\_\_\_ \_\_\_\_\_\_\_SLOPE\_\_\_\_.

3. Write an equation of a line parallel to y = −3x − 2 that passes through the point (−1, 4).

Graph both lines.

**\*A point is given, so need to**

**find m to use y-y1 = m(x-x1)**

**\*Use given equation to find m**

**\*Write final answer in**

**“y = mx + b” form**

4. Write an equation of a line parallel to 3x **−** 2y = 8 that passes through the point (**−**2, 1).

Graph both lines.

**Graph.**

5. y = 2x + 3 6. y = **−**x + 1

y = **−**x **−** 1 y = x **−** 2

**Observations:**

The lines are \_\_PERPENDICULAR\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The slopes of the lines are \_\_\_\_\_\_\_OPPOSITE RECIPROCALS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Perpendicular lines have an \_OPPOSITE RECIPROCAL\_\_ slope.

Given: 2x − 5y = 10 parallel: m = \_\_2/5\_\_\_\_\_\_\_

perpendicular: m = \_\_\_-5/2\_\_\_\_\_\_

7. Write an equation of a line that passes through (2, **−**2) and is perpendicular to

2x + y = 5. Graph both lines.