

Parallel Line Through a Point

Write the equation of the line through the given point that is parallel to the given line. Use $y = mx + b$ when possible, and $x = c$ for a vertical answer.

1. Through (3, 0), write the parallel line.

Given line: $y = \frac{1}{2}x - 2$

Point: (3, 0)

Equation: _____

2. Through (6, 6), write the parallel line.

Given line: $y = \frac{8}{7}x + 3$

Point: (6, 6)

Equation: _____

3. Through (-1, -4), write the parallel line.

Given line: $y = -\frac{7}{10}x + 6$

Point: (-1, -4)

Equation: _____

4. Through (5, -3), write the parallel line.

Given line: $y = -\frac{1}{5}x - 11$

Point: (5, -3)

Equation: _____

5. Through (5, -3), write the parallel line.

Given line: $x + 3y = -15$

Point: (5, -3)

Equation: _____

6. Through (2, 0), write the parallel line.

Given line: $12x - y = -6$

Point: (2, 0)

Equation: _____

7. Through (-3, -6), write the parallel line.

Given line: $y = -12$

Point: (-3, -6)

Equation: _____

8. Through (4, 5), write the parallel line.

Given line: $x = -11$

Point: (4, 5)

Equation: _____

Parallel Line Through a Point

Worked Answer Key

Write the equation of the line through the given point that is parallel to the given line. Use $y = mx + b$ when possible, and $x = c$ for a vertical answer.

1. Through (3, 0), write the parallel line.

Given line: $y = \frac{1}{2}x - 2$

Point: (3, 0)

The given slope is $1/2$; a parallel line has the same slope.
Substitute (3, 0) and simplify: $y = 1/2x - 3/2$.

Answer: $y = \frac{1}{2}x - \frac{3}{2}$

2. Through (6, 6), write the parallel line.

Given line: $y = \frac{8}{7}x + 3$

Point: (6, 6)

The given slope is $8/7$; a parallel line has the same slope.
Substitute (6, 6) and simplify: $y = 8/7x - 6/7$.

Answer: $y = \frac{8}{7}x - \frac{6}{7}$

3. Through (-1, -4), write the parallel line.

Given line: $y = -\frac{7}{10}x + 6$

Point: (-1, -4)

The given slope is $-7/10$; a parallel line has the same slope.
Substitute (-1, -4) and simplify: $y = -7/10x - 47/10$.

Answer: $y = -\frac{7}{10}x - \frac{47}{10}$

4. Through (5, -3), write the parallel line.

Given line: $y = -\frac{1}{5}x - 11$

Point: (5, -3)

The given slope is $-1/5$; a parallel line has the same slope.
Substitute (5, -3) and simplify: $y = -1/5x - 2$.

Answer: $y = -\frac{1}{5}x - 2$

5. Through (5, -3), write the parallel line.

Given line: $x + 3y = -15$

Point: (5, -3)

The given slope is $-1/3$; a parallel line has the same slope.
Substitute (5, -3) and simplify: $y = -1/3x - 4/3$.

Answer: $y = -\frac{1}{3}x - \frac{4}{3}$

6. Through (2, 0), write the parallel line.

Given line: $12x - y = -6$

Point: (2, 0)

The given slope is 12; a parallel line has the same slope.
Substitute (2, 0) and simplify: $y = 12x - 24$.

Answer: $y = 12x - 24$

7. Through (-3, -6), write the parallel line.

Given line: $y = -12$

Point: (-3, -6)

The given slope is 0; a parallel line has the same slope.
Substitute (-3, -6) and simplify: $y = -6$.

Answer: $y = -6$

8. Through (4, 5), write the parallel line.

Given line: $x = -11$

Point: (4, 5)

The given slope is undefined; a parallel line has the same slope.
Substitute (4, 5) and simplify: $x = 4$.

Answer: $x = 4$