The product of any number and its reciprocal is 1

The product of OPPOSITE RECIPROCALS is -1

Is each pair of numbers Opposite Reciprocals?

100 and 0.01 No, their product is not -1

8 and -0.15 No, their product is not -1

3.2 and -0.3125 Yes, their produce is -1

Is each pair of lines parallel?

1. $y = -2x + 4$ $m = -2$

   $y = -2 + 4x$ $m = 4$

These are not parallel, they don't have the same slope.

Is each pair of lines parallel?

2. $y = 3x - 7$ $m = 3$

   $y = 3$ $m = 0$

These are not parallel, they have different slopes.

You could also say that the second is Horizontal and it would only be parallel to another Horizontal line but the first line isn't Horizontal so they must not be parallel.

Is each pair of lines parallel?

3. $y = -\frac{1}{2}x + 7$ $m = -\frac{1}{2}$ $b = 7$

$4x + 8y = 24$ this needs to be rewritten into slope-intercept form so that you can find the slope and y-intercept.

$y = \frac{24 - 4x}{8} = 3 - \frac{1}{2}x$ $m = -\frac{1}{2}$ $b = 3$

Yes, these lines are parallel, they have the same slope but different y-intercepts.

Is each pair of lines parallel?

4. $y = 6x - 1$ $m = 6$ $b = -1$

$6x - 2y = 8$ $m = 3$ $b = -4$

$y = \frac{8 - 6x}{-2} = -4 + 3x$

These lines are not parallel because the slopes are not equal.

Is each pair of lines perpendicular?

1. $y = 3x - 8$ $m = 3$

$y = -3x + 5$ $m = -3$

These lines are not perpendicular because the slopes are reciprocals.

Is each pair of lines perpendicular?

2. $y = 4x + 20$ $m = 4$

$y = \frac{1}{4}x - 2$ $m = \frac{1}{4}$

These lines are not perpendicular because the slopes are not opposites.

Is each pair of lines perpendicular?

3. $y = 2x - 5$ $m = 2$

$6x - 3y = 15$

$y = \frac{15 - 6x}{-3} = -5 + 2x$ $m = 2$

These are not perpendicular because the slopes are equal.

Is each pair of lines perpendicular?

4. $y = 9$ Horizontal Line

$x = 9$ Vertical Line

These lines are Perpendicular. All Horizontal and Vertical Lines form right angles.

Parallel, Perendicular, or Neither?

1.

$y = 1.5x + 8$ $m = 1.5 = \frac{3}{2}$

$y = -\frac{2}{3}x + 6$ $m = -\frac{2}{3}$

These lines are Perpendicular, their slopes are opposite reciprocals.

2. Parallel, Perendicular, or Neither?

$y = 6x - 7$ $m = 6$, $b = -7$

$24x - 4y = 28 \rightarrow y = \frac{28 - 24x}{-4} = -7 + 6x$ $m = 6$, $b = -7$

These lines are neither parallel nor perpendicular, they are the SAME LINE

3. Parallel, Perendicular, or Neither?

$y = x + 3$ $\quad m = 1$

$y = -x - 5$ $\quad m = -1$

These lines lines are Perpendicular because the slopes are opposite reciprocals

4. Parallel, Perendicular, or Neither?

$y = -8x + 3$ $\quad m = -8$, $b = 3$

$16x + 2y = 11 \rightarrow y = \frac{11 - 16x}{2} = 5.5 - 8x$ $\quad m = -8$, $b = 5.5$

These lines are Parallel because they have the same slope but differen y-intercepts.

Use this equation: $y = 4x - 9$

Write the equation of a line that is parallel to this line and passes through the point (5,1)

$m = 4$ same slope

$y - 1 = 4(x - 5)$ then use (5,1) to write answer in Pt-Slope Form

Write the equation of a line that is perpendicular to this line and passes through the point (-8, 7)

$y - 7 = -\frac{1}{4}(x + 8)$ $\quad m = -\frac{1}{4}$

opposite reciprocal slope then use (-8,7) to write answer in Pt-Slope Form

Use this equation: $6x + 3y = 12$

change to y=mx+b to find the slope

$y = \frac{12 - 6x}{3} = 4 - 2x$ $\quad m = -2$

Write the equation of a line that is parallel to this line and passes through the point (-7,4)

$y - 4 = -2(x + 7)$

same slope: m = -2 then use (-7,4) to write answer in Pt-Slope Form

Write the equation of a line that is perpendicular to this line and passes through the point (4, 10)

$m = +\frac{1}{2}$

$y - 10 = \frac{1}{2}(x - 4)$

opposite reciprocal slope then use (4,10) to write answer in Pt-Slope Form.

Use this equation: $y = -6$ this is a Horizontal Line

Write the equation of a line that is parallel to this line and passes through the point (13, -8)

A parallel line would also be horizontal. EQ: $y = -8$

Write the equation of a line that is perpendicular to this line and passes through the point (-2, -7)

A perpendicular line would be vertical. EQ: $x = -2$

You can now finish Hwk #29 Sec 6-5

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Problems 3-5, 16, 20, 21, 24, 27, 35-37, 39