

Finding inverse functions:

Let  $f$  be a function. If there is another function that pairs  $b$  with  $a$  whenever  $f$  pairs  $a$  with  $b$ , they are inverse functions. You can find this using algebra.

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Find the inverse function. *switch x + y*

$f(x) = 4x - 2$

$y = 4x - 2$

$x = 4y - 2$

$f(x) = -\frac{2}{3}x + 1$

$\frac{4x}{4} = \frac{x+2}{4}$   
 $y = \frac{1}{4}x + \frac{1}{2}$   
 $x = -\frac{2}{3}y + 1$   
 $-\frac{3}{2}(x-1) = -\frac{2}{3}y$   
 $y = \frac{3}{2}x + \frac{3}{2}$

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Section 5-6  
Parallel and Perpendicular Lines

Students will be able to:  
 -determine whether lines are parallel, perpendicular or neither.  
 -write the equations of parallel and perpendicular lines.

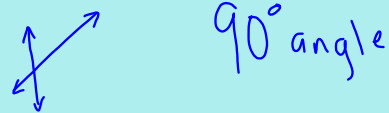
Jan 21-2:23 PM

What do you know about parallel lines?

*never cross, never stop bricks.*

What do you know about perpendicular lines?

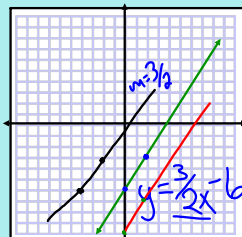
*bricks, letter T, intersection*



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What would be an equation parallel to the green line?

$y = \frac{3}{2}x - 10$



What can we say about the slope of parallel lines?

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Perpendicular lines must meet at a right angle. Therefore, the slopes of perpendicular lines are opposite reciprocals.

$y = 2x + 3$

$m = \frac{2}{1}$   $m_{\perp} = -\frac{1}{2}$

$m = \frac{1}{2}$   
 $m_{\perp} = -\frac{2}{1} = -2$

$y = -\frac{1}{3}x - 1$

$m_{\perp} = \frac{3}{1} = 3$

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Are the graphs parallel, perpendicular or neither?

$4y = -5x + 12$  and  $y = \frac{4}{5}x - 8$

$y = -\frac{5}{4}x + 3$

$y = \frac{3}{4}x + 7$  and  $4x - 3y = 9$

Neither

$y = \frac{4}{3}x - 3$

*perp.*

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Write the equation of the line that passes through  $(-3, -1)$  and is parallel to the graph of  $-2x + y = 3$ .

$+2x$

~~$y = 2x + 3$~~

$m = 2$

$m_{||} = 2$   $(-3, -1)$

$y - (-1) = 2(x - (-3))$

$y + 1 = 2x + 6$

$y = 2x + 5$

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A line passes through  $(1, 8)$  and is perpendicular to  $y = 2x + 1$ . What is the equation for the line in slope-intercept form?

$m = 2$

$m_{\perp} = -\frac{1}{2}$   $(1, 8)$   $8^{1/2}$

$y - 8 = -\frac{1}{2}(x - 1)$

$y - 8 = -\frac{1}{2}x + \frac{1}{2} + 8$

$y = -\frac{1}{2}x + \frac{17}{2}$

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Hwk:

pg. 329 #8, 12, 17

pg. 334 - 335 #8, 12, 14 - 18 (evens), 20, 24, 26, 28 - 30 all, 32, 34

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