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College Algebra Extra Credit Session 5/15

Lines Lecture Notes p. 27

2.3.65 Find the equation of a line that is parallel to the line $x = -12$ and contains the point $(-5, 1)$

$x = -12$ is vertical

parallel to vertical would still be vertical

vertical thru $(-5, 1)$ means c is -5

The vertical line must be $x = -5$
$(x = c)$

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College Algebra Extra Credit Assignment 5/15

Lines Lecture Notes p. 27

(2.365) Find the equation of a line that is parallel to the line $x = -12$ and contains the point $(-5, 1)$

$x = -12$ is vertical

parallel to vertical would still be vertical

vertical thru $(-5, 1)$ means c is -5

The vertical line must be $x = -5$

$(x = c)$

2.3.87 Find the slope and y-intercept of the line $y = -1$.

Intercept as ordered pair (,)

Graph the line

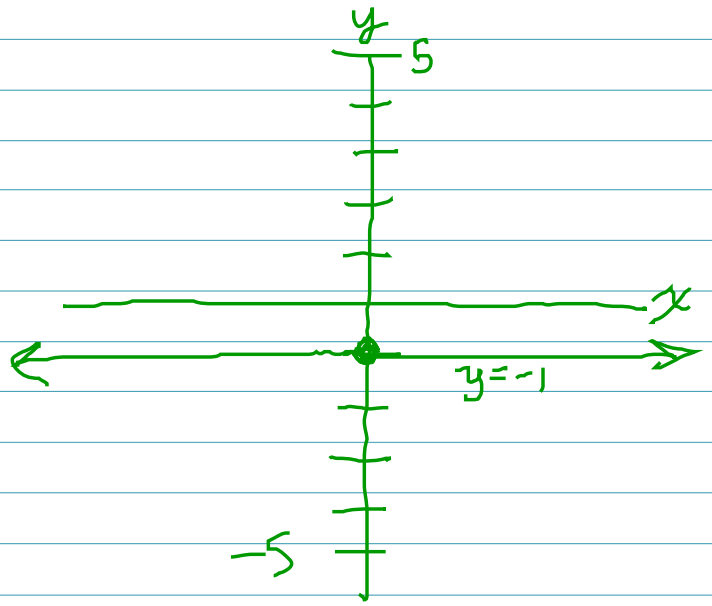
$y = -1$ is horizontal

$y = mx + b$

$y = 0x + -1$

zero $m = 0$

y-int $= -1$ $(0, -1)$



Tilted Lines (L.N. p. 28)

p29 ✓ (38) Find the equation of a line that is perpendicular to the line $y = \frac{1}{4}x + 8$ and contains the point $(-6, 0)$

Find slope

$y = \frac{1}{4}x + 8$

Slope is $\frac{1}{4}$

We want perpendicular which is -4

(our slope is -4)

Find point

$(-6, 0)$ is the only point provided

Our point has x-coord of -6, so choose path on the right.

Point-slope formula

$y - y_1 = m(x - x_1)$

$y - 0 = -4(x - (-6))$

$y = -4(x + 6)$

$y = -4x - 24$

(61) Find the equation of a line that is parallel to the line $y = -19x$ and contains the point $(5, -9)$

show work here

Slope

point

write equation and simplify

Solution parallel to $y = -19x$

slope is -19

Slope ✓ our line must have the same slope, -19.

point ✓ $(5, -9)$

5 is not 0, so we go to the right.

x_1 y_1
$(5, -9)$

-19

$$y - y_1 = m(x - x_1)$$

$$y - (-9) = -19(x - 5)$$

$$y + 9 = -19x + 95$$
$$-9 \qquad\quad -9$$

$$\boxed{y = -19x + 86}$$

(63) Find the equation of a line that is parallel to $7x - y = -14$ and contains the point $(0,0)$.

What is the slope of $7x - y = -14$

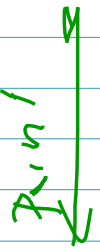
$7x + 14 = y$

$y = 7x + 14$

Slope is 7

Parallel

Our slope is also 7.



point is $(0,0)$

Choose left path.

$y = mx + b$

$y = 7x + 0$

$y = 7x$

(45) Find the slope and y-intercept of the line $4x - 5y = 20$, then graph it.

$$4x - 5y = 20$$

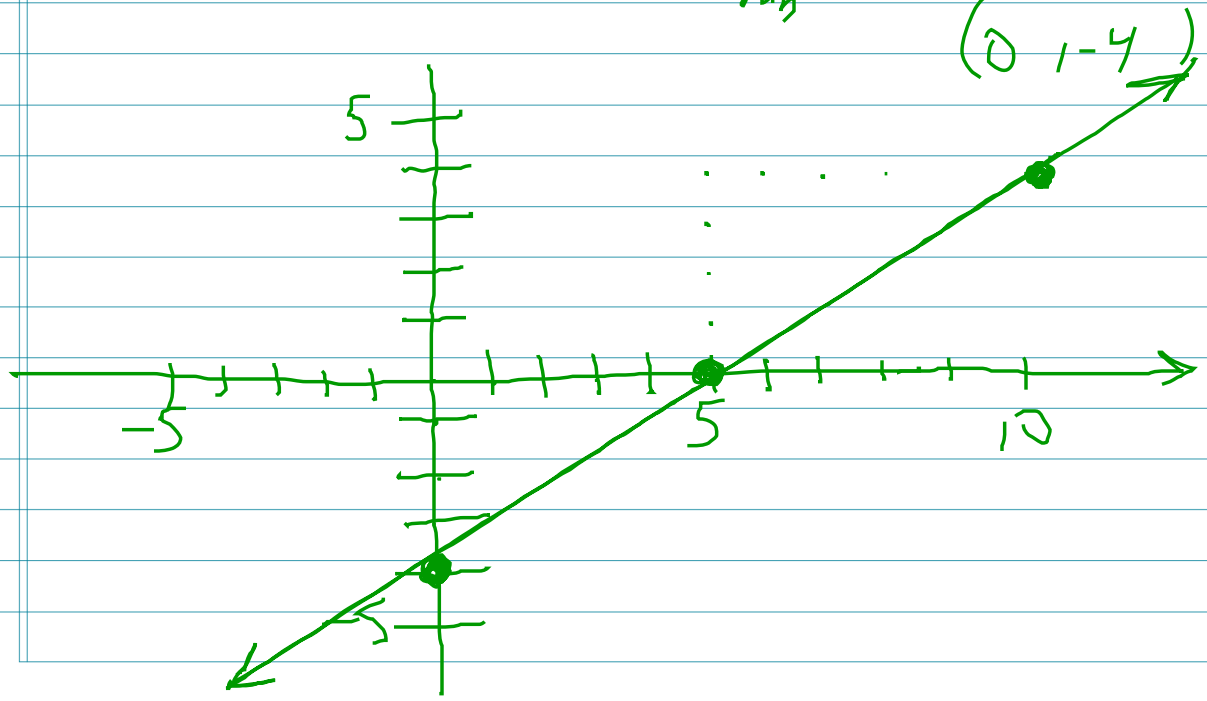
$$-5y = 20 - 4x$$

$$\frac{-5y}{-5} = \frac{-4x + 20}{-5}$$

$$y = \frac{-4x}{-5} + \frac{20}{5}$$

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

Slope is $\frac{4}{5}$ ($\frac{\text{rise}}{\text{run}}$) y-int is -4



LM p23

#11 Equation: $y = x^2 - \sqrt{x}$

Points

(2, -2)

(1, 4)

(4, 14)

Your work here →

(2, -2)

x y

$-2 = 2^2 - \sqrt{2}$

$-2 = 4 - \sqrt{2}$ (false)

(2, -2) is NOT a solution

(1, 4)

x y

$4 = 1^2 - \sqrt{1}$

$4 = 1 - 1$

$4 = 0$ (false)

(1, 4) not a solution (not on graph)

LN p.23

$(\overset{x}{4}, \overset{y}{14})$

$y = x^2 - \sqrt{x}$

$14 = 4^2 - \sqrt{4}$

$14 = 16 - 2$

$14 = 14$ (true)

(4, 14) is a solution
is on the graph

x-interupts:

y-interupts:

LM p.24

#5 Equation $y = x^2 - 4$

y-int ($x=0$)

$y = 0^2 - 4$

$y = 0 - 4$

$y = -4$

$(0, -4)$

x-int ($y=0$)

$0 = x^2 - 4$

$0 + 4 = x^2$

$4 = x^2$

$x^2 = 4$

$x = \pm\sqrt{4}$

$x = \pm 2$

$x = 2$ or $x = -2$

$(2, 0)$ $(-2, 0)$