## Algebra I

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|---|---|---|---|---|---|
| 2) | $y=-3x+4$ | 14) | $y=-\frac{2}{5}x+9$ | 26) | $y=5x+3$ |
| 4) | $y=\frac{2}{3}x+9$ | 16) | $y=4$ | 28) | $y=-x+3$ |
| 6) | $y=-\frac{1}{3}x+1$ | 18) | $y=-2x+3$ | 30) | $y=\frac{5}{2}x-5$ |
| 8) | $y=3x-11$ | 20) | $y=-\frac{4}{3}x$ | 32) | $y=-\frac{1}{2}x-2$ |
| 10) | $y=-x+13$ | 22) | $y=-\frac{1}{2}x+\frac{10}{3}$ | 34) | $y=-1$ |
| 12) | $y=\frac{1}{3}x-2$ | 24) | $y=-\frac{3}{4}x-\frac{13}{4}$ | | |

6) $m=-\frac{1}{3}$ x-int $=3$

$(3,0)$

$y=mx+b$

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

We temporarily use $x$ and $y$ to find $b$.

temp

$0=-\frac{1}{3}(3)+b$

$0=-1+b$

$1=b$

Once we find $b$, we write an equation with $m$ and $b$, but we take the (3,0) back out and use $x$ and $y$.

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

12) $m=\frac{1}{3}$ $(6,0)$

$y=mx+b$

$y=\frac{1}{3}x+b$

$0=\frac{1}{3}(6)+b$

$0=2+b$

$-2=b$

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

14) $m = -\frac{2}{5}$ $(5,7)$

$y = mx + b$

$y = -\frac{2}{5}x + b$

Temp

$7 = -\frac{2}{5}(5) + b$

$7 = -2 + b$

$7 + 2 = -2 + 2 + b$

$9 = b$

$y = -\frac{2}{5}x + 9$

18) $(0,3)$ $(2,-1)$

$y = mx + b$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3-(-1)}{0-2} = \frac{4}{-2} = -2$

$y = -2x + b$

$3 = -2(0) + b$

$3 = b$

$y = -2x + 3$

20) $(-3,4)(3,-4)$

$y = mx + b$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4-4}{3-(-3)} = \frac{-8}{6} = \boxed{-\frac{4}{3}}$$

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

Temp

$(3,-4)$

$-4 = -\frac{4}{3}(3) + b$

$-4 = -4 + b$

$+4 \quad +4$

$0 = b$

22) $(-2,4)(4,2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2-4}{4-(-2)} = \frac{-2}{6} = -\frac{1}{3}$$

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

Temp

$(4,2)$

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

$-2 = -\frac{4}{3} + b$ or

$\frac{6}{3} \quad +\frac{4}{3} = -\frac{4}{3} + \frac{4}{3} + b$

$\frac{10}{3} = b$

$(2 = -\frac{4}{3} + b)3$

$6 = -4 + 3b$

$4 + 6 = -4 + 4 + 3b$

$\frac{10}{3} = \frac{3b}{3}$

$\frac{10}{3} = b$

$y = -\frac{1}{3}x + \frac{10}{3}$

24) $(-3,-1)(1,-4)$

$y = mx + b$

$m = \frac{-4-(-1)}{1-(-3)} = \frac{-3}{4}$

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

$-4 = -\frac{3}{4}(1) + b$

$\frac{-16}{4} = \frac{-3}{4} + b$

$\frac{-16}{4} + \frac{3}{4} = b$

$\frac{-13}{4} = b$

$y = -\frac{3}{4}x - \frac{13}{4}$

30) y-int: $-5$ $(0,-5)$

x-int: $3$ $(3,0)$

$m = \frac{y_2-y_1}{x_2-x_1} = \frac{0-(-5)}{3-0} = \frac{5}{3}$

$y = mx + b$

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

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

32) y-int: $-2$ $(0,-2)$

x-int: $-4$ $(-4,0)$

$m = \frac{y_2-y_1}{x_2-x_1} = \frac{0-(-2)}{-4-0} = \frac{2}{-4} = -\frac{1}{2}$

$y = mx + b$

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

34) horizontal ⟷ $y=$

$(-2, -1)$

$y = -1$

Vertical

$(-2, -1)$

$x = -2$