Homework Practice

Graph a Line Using Intercepts

Answers   Pg 5

State the x- and y-intercepts of each function.

1. $-6x + 8y = 24$

Xint
$-6x + 8(0) = 24$
$-6x = 24$
$x = -4$

yint
$-6(0) + 8y = 24$
$8y = 24$
$y = 3$

2. $\frac{3}{4}x - 6y = 18$

Xint
$\frac{3}{4}x - 6(0) = 18$
$\frac{4}{3} \cdot \frac{3}{4}x = 18 \cdot \frac{4}{3}$
$x = 24$

yint
$\frac{3}{4}(0) - 6y = 18$
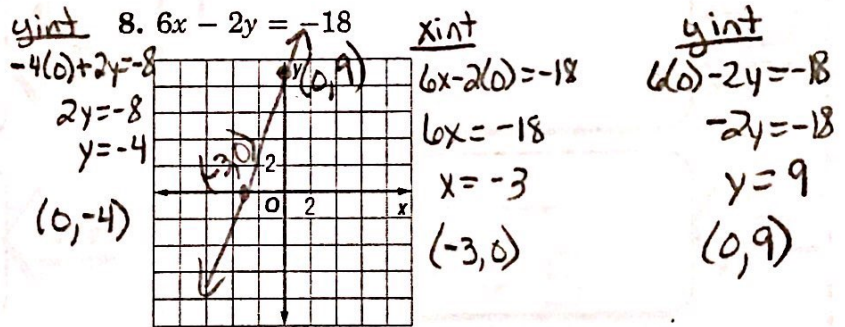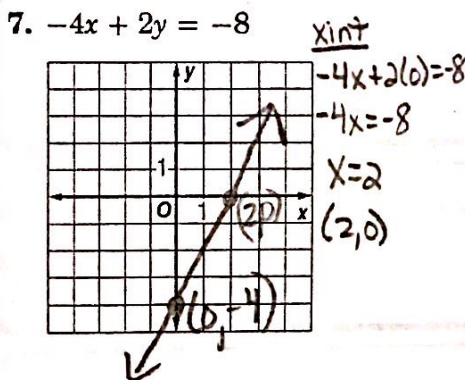$-6y = 18$
$y = -3$

3. $-\frac{1}{4}x - \frac{1}{3}y = 12$

Xint
$-\frac{1}{4}x - \frac{1}{3}(0) = 12$
$-4 \cdot -\frac{1}{4}x = 12 \cdot -4$
$x = -48$

yint
$-\frac{1}{4}(0) - \frac{1}{3}y = 12$
$-3 \cdot -\frac{1}{3}y = 12 \cdot -3$
$y = -36$

4. $-10x - 10y = -20$

Xint
$-10x - 10(0) = -20$
$-10x = -20$
$x = 2$

yint
$-10(0) - 10y = -20$
$-10y = -20$
$y = 2$

5. $x + y = 1$

Xint
$x + (0) = 1$
$x = 1$

yint
$(0) + y = 1$
$y = 1$

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

Xint
$-x - (0) = \frac{1}{2}$
$-1 \cdot -x = \frac{1}{2} \cdot -1$
$x = -\frac{1}{2}$

yint
$-(0) - y = \frac{1}{2}$
$-1 \cdot -y = \frac{1}{2} \cdot -1$
$y = -\frac{1}{2}$

State the x- and y-intercepts of each function. Then graph the function.

7. $-4x + 2y = -8$

Xint
$-4x + 2(0) = -8$
$-4x = -8$
$x = 2$
$(2,0)$

yint
$-4(0) + 2y = -8$
$2y = -8$
$y = -4$
$(0,-4)$

8. $6x - 2y = -18$

Xint
$6x - 2(0) = -18$
$6x = -18$
$x = -3$
$(-3,0)$

yint
$6(0) - 2y = -18$
$-2y = -18$
$y = 9$
$(0,9)$

9. FARMING Mr. Jeans raises cows and chickens on his farm. Altogether, his cows and chickens have 140 legs. This can be represented by the function $4x + 2y = 140$. Graph the function. Then interpret the x- and y-intercepts.

x is how many cows
y is how many chickens
cows have 4 legs, so 4 times x (x)
chickens have 2 legs, so 2 times y (y)

Xint
$4x + 2(0) = 140$
$4x = 140$
$x = 35$

yint
$4(0) + 2y = 140$
$2y = 140$
$y = 70$

If mr. Jeans has 35 cows, he has no chickens.

If mr. Jeans has 70 chickens he has no cows.
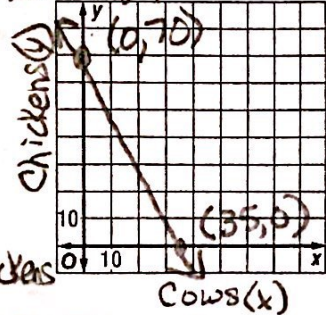
10. MONEY Monty has a total of $290 in ten dollar and five dollar bills. This can be represented by the function $10x + 5y = 290$. Interpret the x- and y-intercepts.

x is how many 10 dollar bills, y is how many 5 dollar bills.

Xint
$10x + 5(0) = 290$
$10x = 290$
$x = 29$
$(29,0)$

yint
$10(0) + 5y = 290$
$5y = 290$
$y = 58$
$(0,58)$

Equations in Two Variables

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If Monty has 29 of 10 dollar bills, he has no 5 dollar bills.

If monty has 58 of 10 dollar bills, he has no 10 dollar bills.