

You charge \$80 for some stuff.

You paid \$420.

$$\begin{array}{r}
 80 \\
 160 \\
 240 \\
 320 \\
 \underline{400} \\
 480 \\
 80w
 \end{array}
 \begin{array}{l}
 1 \\
 2 \\
 3 \\
 4 \\
 5 \\
 6 \\
 w
 \end{array}$$

Red arrows indicate a sequence from 1 to 6, then to w .

$$x + 17 \leq 31$$

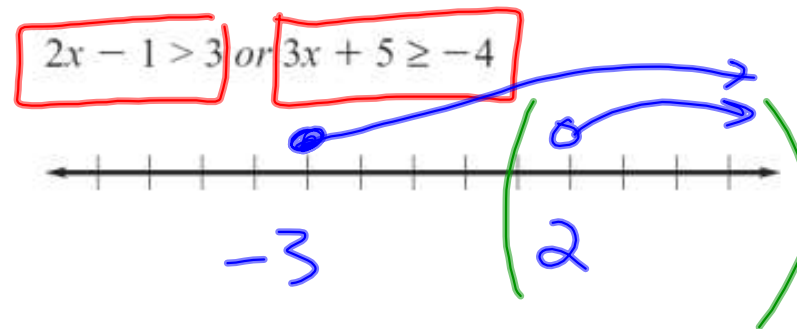
$$13x + 5 > 4$$

$$\frac{80w}{80} > \frac{420}{80}$$

$$w > 5\frac{1}{4}$$

$$w > 5$$

$$w \geq 6$$



$$2x - 1 > 3$$
$$+1 \quad +1$$

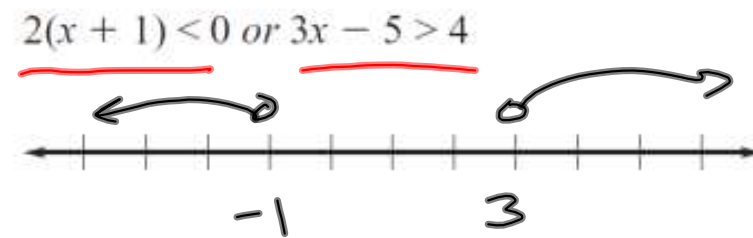
$$\frac{2x}{2} > \frac{4}{2}$$

$$x > 2$$

$$3x + 5 \geq -4$$
$$-5 \quad -5$$

$$\frac{3x}{3} \geq \frac{-9}{3}$$

$$x \geq -3$$



$$2(x+1) < 0$$

$$2x + 2 < 0$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$\frac{2x}{2} < \frac{-2}{2}$$

$$x < -1$$

$$3x - 5 > 4$$

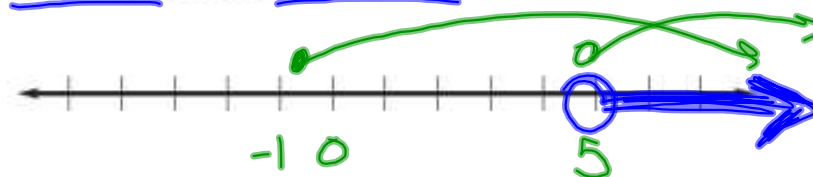
$$\begin{array}{r} +5 \quad +5 \\ \hline \end{array}$$

$$3x > 9$$

$$\frac{3}{3} \quad \frac{9}{3}$$

$$x > 3$$

$$\underline{2x + 4 \geq 3} \text{ and } \underline{x + 4 > 9}$$



$$2x + 4 \geq 3$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$\frac{2x}{2} \geq \frac{-1}{2}$$

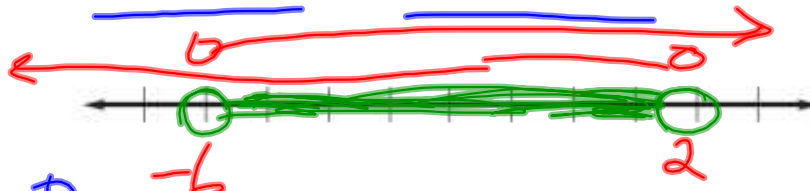
$$x \geq -\frac{1}{2}$$

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$$x + 4 > 9$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$x > 5$$

$$3x + 10 > -8 \text{ and } -4x + 10 > 2$$


Handwritten solution steps:

$$\begin{aligned} 3x + 10 &> -8 \\ -10 & -10 \\ \hline 3x &> -18 \\ \frac{3x}{3} & \frac{-18}{3} \\ x &> -6 \end{aligned}$$

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$$\begin{aligned} -4x + 10 &> 2 \\ -10 & -10 \\ \hline -4x &> -8 \\ \frac{-4x}{-4} & \frac{-8}{-4} \\ x &< 2 \end{aligned}$$

**Greeting Cards** Your school club is making greeting cards to raise money for a trip. You spend \$60 on supplies and plan to sell the cards for \$2 each.

- Write an inequality that gives the possible numbers  $c$  of cards you need to sell in order for the profit to be positive.
- What are the possible numbers of cards you need to sell in order for the profit to be positive?

How many cards do you need to sell to make it worth it?

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How much money do we get for selling  $c$  cards?

| cards | \$   |
|-------|------|
| 1     | 2    |
| 2     | 4    |
| 3     | 6    |
| 4     | 8    |
| $c$   | $2c$ |

$$\textcircled{a} \quad \frac{2c}{2} > \frac{60}{2}$$

$$\textcircled{b} \quad c > 30$$

$$9 > \frac{3}{4}(8x - 12) > -15$$



$$9 > \frac{3}{4}(8x - 12)$$

$$9 > \frac{24}{4}x - \frac{36}{4}$$

$$9 > 6x - 9$$
$$+9 \quad +9$$

$$\frac{18}{6} > \frac{6x}{6}$$

$$3 > x \rightarrow x < 3$$

$$\text{and } \frac{3}{4}(8x - 12) > -15$$

$$\frac{24}{4}x - \frac{36}{4} > -15$$

$$6x - 9 > -15$$
$$+9 \quad +9$$

$$\frac{6x}{6} > \frac{-6}{6}$$

$$x > -1$$