

Unit 6: Linear Equations

Name: \_\_\_\_\_

6.4 Solving Linear Inequalities by Using Addition and Subtraction - Notes

Example (1): Solve each inequality.

Verify the solution.

Graph the solution.

$$\text{a) } 6.2 \leq \cancel{x - 4.5} \\ +4.5 \quad +4.5$$

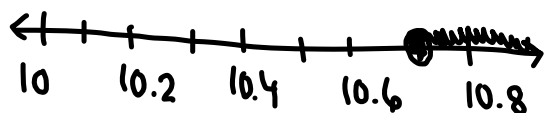
$$10.7 \leq x$$

$$\boxed{x \geq 10.7}$$

Check:  $x = 10.7$

$$6.2 \stackrel{?}{\leq} 10.7 - 4.5$$

$$6.2 \leq 6.2 \checkmark \text{ 😊}$$



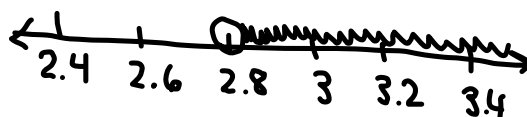
$$\text{b) } \cancel{y + 7.4} > 10.2 \\ -7.4 \quad -7.4$$

$$\boxed{y > 2.8}$$

Check:  $y = 3$

$$3 + 7.4 \stackrel{?}{>} 10.2$$

$$10.4 > 10.2 \checkmark \text{ 😊}$$



$$\text{c) } -2.3 < x - 1.5 \\ +1.5 \quad +1.5$$

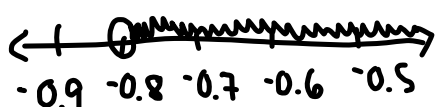
$$-0.8 < x$$

$$\boxed{x > -0.8}$$

Check:  $x = 1$

$$-2.3 \stackrel{?}{<} 1 - 1.5$$

$$-2.3 < -0.5 \checkmark \text{ 😊}$$



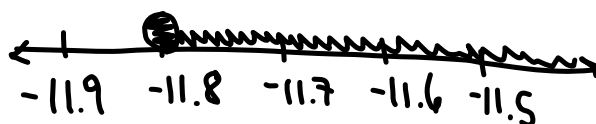
$$\text{d) } \cancel{y + 5.6} \geq -6.2 \\ -5.6 \quad -5.6$$

$$\boxed{y \geq -11.8}$$

Check:  $y = -11.8$

$$-11.8 + 5.6 \stackrel{?}{\geq} -6.2$$

$$-6.2 \geq -6.2 \checkmark \text{ 😊}$$



Example (2): Suzie plans to hire a cleaning service for her store.

Company A charges \$250 plus \$11 per hour.

Company B charges \$275 plus \$10 per hour.

How many hours of cleaning for Company A to be less expensive than Company B?

- a) Choose a variable and write an inequality that can be used to solve this problem.

$h = \# \text{ of hours}$

$$\begin{array}{rcl} \text{Company A} & < & \text{Company B} \\ 250 + 11h & < & 275 + 10h \\ -10h & & -10h \end{array}$$

- b) Solve the problem.

Company A is less expensive when the number of hours is strictly less than 25.  
For example, 24, 23, 22, ...

$$\begin{array}{rcl} 250 + h & < & 275 \\ -250 & & -250 \\ h & < & 25 \end{array}$$

- c) Graph the solution. Data is discrete because they charge for the whole number.

