

$$(18) \quad 9 - 2x < 7 + 2(x - 3)$$

$$9 - 2x < 7 + 2x - 6$$

$$\begin{array}{r} 9 - 2x < 1 + 2x \\ +2x \quad \quad +2x \end{array}$$

$$\begin{array}{r} 9 < 1 + 4x \\ -1 \quad \quad -1 \end{array}$$

$$\begin{array}{r} 8 < 4x \\ 4 \quad \quad 4 \end{array}$$

$$2 < x$$

Rewrite:  $x > 2$

$$(19) \quad 2(n - 3) \leq -13 + 2n$$

$$\begin{array}{r} 2n - 6 \leq -13 + 2n \\ +6 \quad \quad +6 \end{array}$$

$$2n \leq -7 + 2n$$

no solution

$$(20) \quad -3(w + 3) < 9 - 3w$$

$$\begin{array}{r} -3w - 9 < 9 - 3w \\ +9 \quad \quad +9 \end{array}$$

$$-3w < 18 - 3w$$

all real numbers

$$(9) \quad 15(j-3) + 3j < 45$$

$$15j - 45 + 3j < 45$$

$$18j - 45 < 45$$

+45   +45

$$\frac{18j}{18} < \frac{90}{18}$$

$$j < 5$$

$$(10) \quad 22 \geq 5(2y+3) - 3y$$

$$22 \geq 10y + 15 - 3y$$

$$22 \geq 7y + 15$$

-15   -15

$$\frac{7}{7} \geq \frac{7y}{7}$$

$$1 \geq y$$

Rewrite  $y \leq 1$

$$(11) \quad -53 > -3(3z+3) + 3z$$

$$-53 > -9z - 9 + 3z$$

$$-53 > -6z - 9$$

+9   +9

$$\frac{-44}{-6} > \frac{-6z}{-6}$$

\* Divided by a neg. FLIP!

$$\frac{44}{6} < z$$

$$\frac{22}{3} < z$$

$$7\frac{1}{3} < z$$

Rewrite  $z > 7\frac{1}{3}$

$$(12) \quad 20(d-4) + 4d \leq 8$$

$$20d - 80 + 4d \leq 8$$

$$24d - 80 \leq 8$$

+80   +80

$$\frac{24d}{24} \leq \frac{88}{24}$$

$$d \leq \frac{11}{3}$$

$$(13) \quad -x + 2 < 3x - 6$$

$$-3x \quad -3x$$

$$-4x + 2 < -6$$

-2   -2

$$\frac{-4x}{-4} < \frac{-8}{-4}$$

$$x > 2$$

\* Divide by a neg, FLIP sign!

### 3-4 Practice

$$\textcircled{1} \quad \begin{array}{r} 3f + 9 < 21 \\ -9 \quad -9 \end{array}$$

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$$\frac{3f}{3} < \frac{12}{3}$$

$$f < 4$$

If it is less than 4,  
check a number less than  
4.

I will check 3

$$3(3) + 9 < 21$$

$$9 + 9 < 21$$

$$18 < 21 \quad \checkmark$$

$$\textcircled{3} \quad \begin{array}{r} 33y - 3 \leq 8 \\ +3 \quad +3 \end{array}$$

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$$\frac{33y}{33} \leq \frac{11}{33}$$

$$y \leq \frac{1}{3}$$

Since it can be  
equal to  $\frac{1}{3}$ , check  $\frac{1}{3}$ .

$$33\left(\frac{1}{3}\right) - 3 \leq 8$$

$$11 - 3 \leq 8$$

$$8 \leq 8 \quad \checkmark$$

$$\textcircled{2} \quad \begin{array}{r} 4n - 3 \geq 105 \\ +3 \quad +3 \end{array}$$

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$$\frac{4n}{4} \geq \frac{108}{4}$$

$$n \geq 27$$

Since it can be equal to  
27, I will check 27.

$$4(27) - 3 \geq 105$$

$$108 - 3 \geq 105$$

$$105 \geq 105 \quad \checkmark$$

$$\textcircled{4} \quad \begin{array}{r} 2 + 2p > -17 \\ -2 \quad -2 \end{array}$$

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$$\frac{2p}{2} > \frac{-19}{2}$$

$$p > -\frac{19}{2} \text{ or } p > -9\frac{1}{2}$$

check an answer greater  
than  $-9\frac{1}{2}$ , I will check -9.

$$2 + 2(-9) > -17$$

$$2 - 18 > -17$$

$$-16 > -17 \quad \checkmark$$