

1180\_lin-ineq-ans ①  $3x - 1 > 2x + 2$

$$\begin{array}{r} 3x - 1 > 2x + 2 \\ -2x + 1 \quad -2x + 1 \\ \hline x > 3 \end{array}$$

②  $2x - 1 > 7$

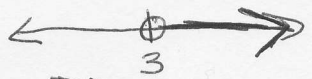


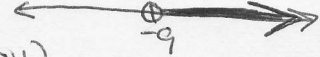


$$\begin{array}{r} 2x - 1 > 7 \\ +1 \quad +1 \\ \hline 2x > 8 \\ \frac{2x}{2} > \frac{8}{2} \\ x > 4 \end{array}$$

③  $3 - 5x \leq 18$

$$\begin{array}{r} 3 - 5x \leq 18 \\ -3 \quad -3 \\ \hline -5x \leq 15 \\ \frac{-5x}{-5} \leq \frac{15}{-5} \\ x \geq -3 \end{array}$$

MATH 1180 Linear Inequalities

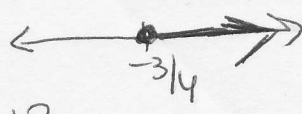
Practice

1.  $3x - 1 > 2x + 2$   $x > 3$  
2.  $2x - 1 > 7$   $x > 4$  
3.  $3 - 5x \leq 18$   $x \geq -3$  
4.  $-2 - x < 7$   $x > -9$  
5.  $3x + 1 \leq 7x + 4$  Below 
6.  $6 - 2(x - 4) \leq 2x + 10$   $x \geq 1$  
7.  $x - 5 \leq 2$  and  $3x > -12$  Below
8.  $3x < 12$  or  $x - 1 > 5$  Below
9.  $-2 < 3x + 1 < 10$

④  $-2 - x < 7$

$$\begin{array}{r} -2 - x < 7 \\ +2 \quad +2 \\ \hline -x < 9 \\ -1 \quad -1 \\ \hline x > -9 \end{array}$$


⑤  $3x + 1 \leq 7x + 4$

$$\begin{array}{r} 3x + 1 \leq 7x + 4 \\ -7x - 1 \quad -7x - 1 \\ \hline -4x \leq 3 \\ \frac{-4x}{-4} \leq \frac{3}{-4} \\ x \geq -\frac{3}{4} \end{array}$$


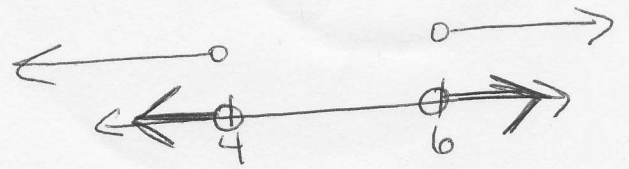
⑥  $6 - 2(x - 4) \leq 2x + 10$

$$\begin{array}{r} 6 - 2(x - 4) \leq 2x + 10 \\ 6 - 2x + 8 \leq 2x + 10 \\ -2x + 14 \leq 2x + 10 \\ -2x - 14 \quad -2x - 14 \\ \hline -4x \leq -4 \\ \frac{-4x}{-4} \leq \frac{-4}{-4} \\ x \geq 1 \end{array}$$

⑦  $x - 5 \leq 2$  and  $3x > -12$

$$\begin{array}{r} x - 5 \leq 2 \\ +5 \quad +5 \\ \hline x \leq 7 \end{array} \quad \begin{array}{r} 3x > -12 \\ \frac{3x}{3} > \frac{-12}{3} \\ x > -4 \end{array}$$


⑧  $3x < 12$  or  $x - 1 > 5$

$$\begin{array}{r} 3x < 12 \\ \frac{3x}{3} < \frac{12}{3} \\ x < 4 \end{array} \quad \begin{array}{r} x - 1 > 5 \\ +1 \quad +1 \\ \hline x > 6 \end{array}$$


⑨  $-2 < 3x + 1 < 10$

$$\begin{array}{r} -2 < 3x + 1 < 10 \\ -1 \quad -1 \quad -1 \\ \hline -3 < 3x < 9 \\ \frac{-3}{3} < \frac{3x}{3} < \frac{9}{3} \\ -1 < x < 3 \end{array}$$
