

Use the following to answer questions 1-2

$(-1, 4]$

1. Rewrite the interval in *inequality* notation.

$-1 < x \leq 4$

2. Graph the interval.



Use the following to answer questions 3-4.

$-3 < x \leq 6$

3. Rewrite the inequality in *interval* notation.

$(-3, 6]$

4. Graph the inequality.



5. Solve and graph.

$4(6-x) > 15-x$

$24 - 4x > 15 - x$

$9 > 3x$

$3 > x$

$x < 3$

$(-\infty, 3)$



6. Solve and graph.

$1 - \frac{3}{2}x \geq x - 4$

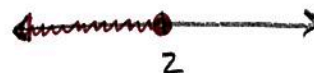
$2 - 3x \geq 2x - 8$

$10 \geq 5x$

$2 \geq x$

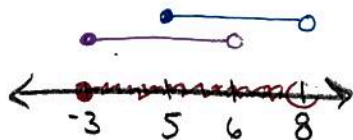
$x \leq 2$

$(-\infty, 2]$



7. Write as a single interval, if possible.

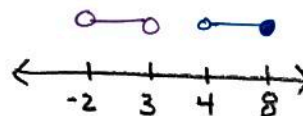
$[-3, 6) \cup [5, 8)$ "OR" = Union



$[-3, 8)$

8. Write as a single interval, if possible.

$(-2, 3) \cup (4, 8)$ "OR" = Union



Not possible to write as a single interval

9. For what values of x does the expression represent a real number?
Write your answer in interval notation.

$$\sqrt{5x+20}$$

$$\begin{aligned} 5x+20 &\geq 0 \\ 5x &\geq -20 \\ x &\geq -4 \end{aligned}$$

$$[-4, \infty)$$

11. Solve and graph.

$$|x+7|=1$$

$$\begin{aligned} x+7=1 & \quad \text{OR} \quad x+7=-1 \\ x=-6 & \quad \quad \quad x=-8 \end{aligned}$$

$$\{-8, -6\}$$



10. For what values of x does the expression represent a real number?
Write your answer in interval notation.

$$\sqrt{3x-9}$$

$$\begin{aligned} 3x-9 &\geq 0 \\ 3x &\geq 9 \\ x &\geq 3 \end{aligned}$$

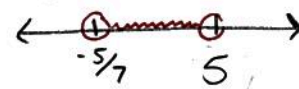
$$[3, \infty)$$

12. Solve and graph.

$$|7x-15| < 20$$

$$\begin{aligned} 7x-15 < 20 & \quad \text{AND} \quad 7x-15 > -20 \\ 7x < 35 & \quad \quad \quad 7x > -5 \\ x < 5 & \quad \quad \quad x > -5/7 \end{aligned}$$

$$(-5/7, 5)$$



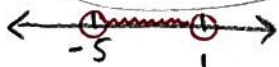
13. Solve and graph.

$$\sqrt{(x+2)^2} < 3$$

$$|x+2| < 3$$

$$\begin{aligned} x+2 < 3 & \quad \text{AND} \quad x+2 > -3 \\ x < 1 & \quad \quad \quad x > -5 \end{aligned}$$

$$(-5, 1)$$



14. Solve and graph.

$$|x-2|=2x-7$$

$$\begin{aligned} x-2=2x-7 & \quad \text{OR} \quad x-2=-(2x-7) \\ -x &= -5 & \quad \quad x-2=-2x+7 \\ x &= 5 & \quad \quad 3x=9 \end{aligned}$$

$$x=3$$

Check:

$$|5-2| \stackrel{?}{=} 2(5)-7$$

$$|3| = 10-7$$

$$3 = 3 \checkmark$$

$$|3-2| \stackrel{?}{=} 2(3)-7$$

$$|1| = 6-1$$

$$1 \neq -1 \times$$