

**DO NOW:** For Exercises 1–5 match the inequality in Column A to its matching verbal expression in Column B.

**Column A**

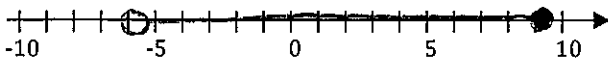
1.  $t > 42$  E
2.  $s \leq 55$  D
3.  $n - 3 > 9$  A
4.  $x < -5$  B
5.  $c < 3$  C

**Column B**

- A. 3 less than a number  $n$  is greater than 9
- B.  $x$  is less than negative 5
- C. children under 3 are admitted free
- D. the speed limit is less than or equal to 55 miles per hour
- E. must be over 42 inches tall to ride

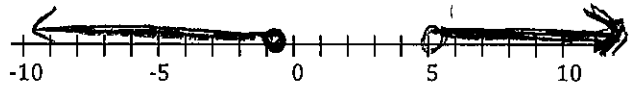
**AIM: SOLVING INEQUALITIES**

6. Graph  $x > -6$  and  $x \leq 9$

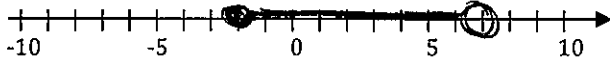


$-6 < x \leq 9$   
"and"

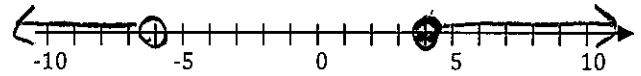
7. Graph  $x \leq -1$  or  $x > 5$



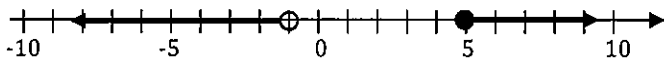
8. Graph  $-2 \leq x < 7$



9. Graph  $x < -6$  or  $x \geq 4$

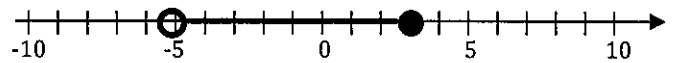


10. Write a compound inequality for the given graph.



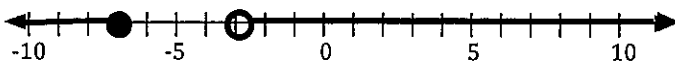
$x < -1$  or  $x \geq 5$

11. Write a compound inequality for the given graph.



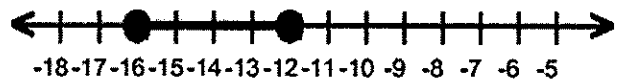
$-5 < x \leq 3$

12. Write a compound inequality for the given graph.



$x \leq -7$  or  $x > 7$

13. Write a compound inequality for the given graph.

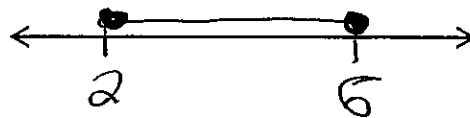


$-16 \leq x \leq -12$

14. Solve each compound inequality for  $x$  and graph the solution on a number line.

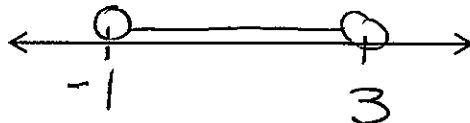
a.  $4 \leq x+2 \leq 8$

$$\begin{array}{r} -2 \quad -2 \quad -2 \\ \hline 2 \leq x \leq 6 \end{array}$$



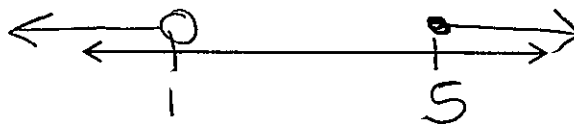
b.  $-3 < 2x - 1 < 5$

$$\begin{array}{r} +1 \quad +1 \quad +1 \\ \hline -2 < 2x < 6 \\ \frac{-2}{2} < \frac{2x}{2} < \frac{6}{2} \\ -1 < x < 3 \end{array}$$



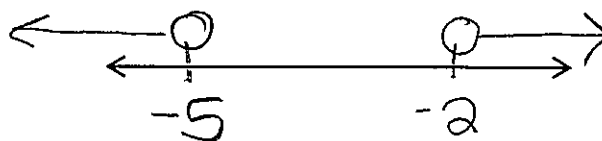
c.  $\frac{2x}{2} < \frac{2}{2}$  or  $\frac{x+5}{-5} \geq \frac{10}{-5}$

$$\begin{array}{r} \frac{2x}{2} < \frac{2}{2} \quad \frac{x+5}{-5} \geq \frac{10}{-5} \\ \hline x < 1 \quad \text{or} \quad x \geq 5 \end{array}$$



d.  $1+x < -4$  or  $\frac{3x-6}{3} > \frac{-12}{3}$

$$\begin{array}{r} -1 \quad -1 \quad +6 \quad +6 \\ \hline x < -5 \quad \text{or} \quad \frac{3x}{3} > \frac{-6}{3} \\ x < -5 \quad \text{or} \quad x > -2 \end{array}$$



15. When at a carnival there are height restrictions to go on each ride. Determine which rides each member of this family can go on by filling out the table below:

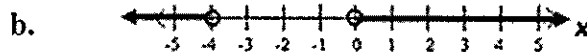
	The Swings: $h > 24$ and $h < 70$	Wooden Rollercoaster: $h > 42$ and $h < 72$	Tea cups: $h \leq 35$ or $h \geq 60$
Tracey: $h = 47$ inches	Yes	Yes	No
Mark: $h = 70$ inches	No	Yes	Yes
Marissa: $h = 28$ inches	Yes	No	Yes

EXTRA PRACTICE

16. Write a compound inequality for each graph



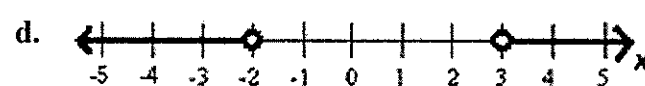
$$-3 \leq x \leq 4$$



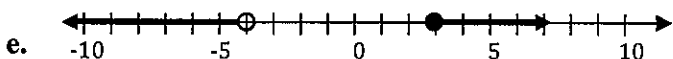
$$x < -4 \text{ or } x > 0$$



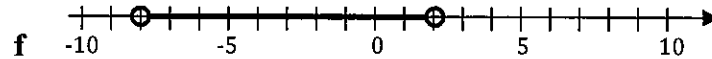
$$-4 \leq x \leq -2$$



$$x < -2 \text{ or } x > 3$$



$$x < -4 \text{ or } x > 3$$



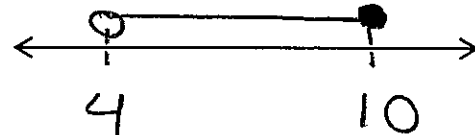
$$-8 < x < 2$$

17. Solve each compound inequality for  $x$  and graph the solution on a number line.

a.  $5 < 2x - 3 \leq 17$

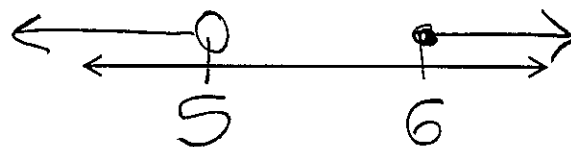
$$\begin{array}{r} +3 \quad +3 \quad +3 \\ \hline 8 < 2x \leq 20 \\ \frac{8}{2} < \frac{2x}{2} \leq \frac{20}{2} \end{array}$$

$$4 < x \leq 10$$



b.  $\frac{2x}{2} < \frac{10}{2} \text{ or } \frac{x}{2} \geq 3 \left(\frac{6}{1}\right)$

$$x < 5 \text{ or } x \geq 6$$



18. Write a single or compound inequality for each scenario.

a. To ride the roller coaster, one must be *at least* 4 feet tall.

$$x \geq 4$$

b. The scores on the last test ranged from 65% to 100%.

$$65 \leq x \leq 100$$