Write an inequality for the following statements.

1.) The theater can seat no more than 500 people.

$$X \le 500$$

2.) The ladder can reach a maximum of 20 feet up the wall.

$$\ell \le 20$$

3.) They need at least 51% of the people to vote yes for the proposal to pass.
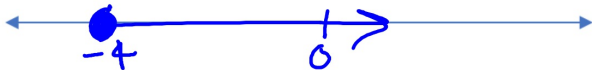
$$51 \le X \qquad X \ge 51$$

4.) The team can have up to 18 players on the roster.

$$X \le 18$$

5.) The minimum charge allowed to be able to use a credit card is $10.

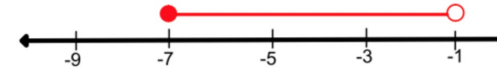$$X \ge 10$$

6.) **Graph this inequality:** $-4 \le G$

$$G \ge -4$$

7.) **Write an inequality for the following graph.**

$$-7 \le X < -1$$

$$X \ge -7 \text{ and}$$
$$X < -1$$

Solve each inequality/absolute value equation.

8.) $4 - 3(y - 5) + 9y > 15 + 6y$

$4 - 3y + 15 + 9y > 15 + 6y$

$19 + 6y > 15 + 6y$

$19 > 15$

$\varnothing$

9.) $\left(\dfrac{11}{9} - \dfrac{7}{6}M\right)\left(\dfrac{5}{12}\right)$ ³⁶ ³⁶

$44 - 42M < 15$

$-42M < -29$

$M > \dfrac{29}{42}$, 0.69

10.) $3|2x - 7| + 4 = 31$

$\quad -4 \quad -4$

$3|2x - 7| = 27$

$|2x - 7| = 9$

$2x - 7 = 9 \qquad 2x - 7 = -9$

$2x = 16 \qquad\quad 2x = -2$

$\boxed{x = 8} \qquad\quad \boxed{x = -1}$

11.) $\dfrac{1}{2}|3x + 8| + 13 = 5$

$\quad -13 \quad -13$

$2 \cdot \dfrac{1}{2}|3x + 8| = -8 \cdot 2$

$|3x + 8| = -16$

$|3x + 8| = -16$

$\varnothing$

1.) Solve: $\frac{1}{3}| x | + 8 = 20$

2.) Solve: $3|x - 2| - 10 = 11$

3.) Solve: $-6|2x - 14| = -42$

Write an inequality to model each statement:
1. The team needs at least 42,000 fans to show up for the last game to break the attendance record.

$42,000 \le X$; $X \ge 42000$

2. You can take no more than 45 minutes to complete the test.

$X \le 45$

3. In order to make a profit the dealer needs to sell a minimum of 35 cars this month.

$X \geq 35$

4. The restaurant can seat up to 120 people at a time.

$X \leq 120$

5. The maximum score on the SAT test is 1600.

$X \leq 1600$

6. To be a pilot your standing height must be between 62 inches and 77 inches.

$62 < X < 77$

7. To get a discount movie ticket you can be no more than 10 years old or must be at least 60 years old.

$X \leq 10$ or
$X \geq 60$

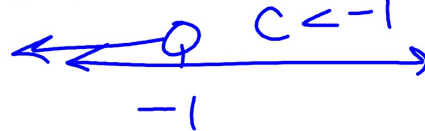## Graph each inequality on a number line.
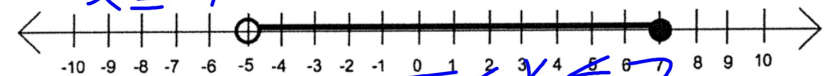
8. $y \geq -3$

9. $m < 5$

10. $-1 > c$

$C < -1$

-1

Model each graph with an inequality.

14. $X \geq -5$ &
$X \leq -7$ $-5 \leq X$ & $7 \geq X$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

$-5 \leq X \leq 7$

15. $X \leq -1$ or $X > 3$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
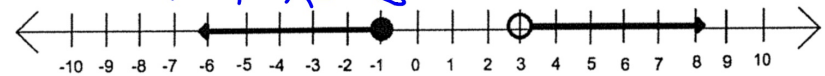
Solve each inequality.

17. $9 - 4x \geq 29$

18. $-7 + 2(w - 3) < -42$

19. $m + 8 - 4m \leq 2m + 6 - m - 12$

20. $4k + 3(k - 1) > 6(k - 2) + 9 + k$

Solve each Absolute Value Equation.

31. $2|x - 9.8| + 3.2 = 42.6$