

# Chapter 3 & 4

## Review

1.  $|x|$  read "the absolute value of  $x$ ", is a measure of \_\_\_\_\_ and as such is always \_\_\_\_\_.

$|x|$  read "the absolute value of  $x$ ", is a measure of **distance** and as such is always **positive**.

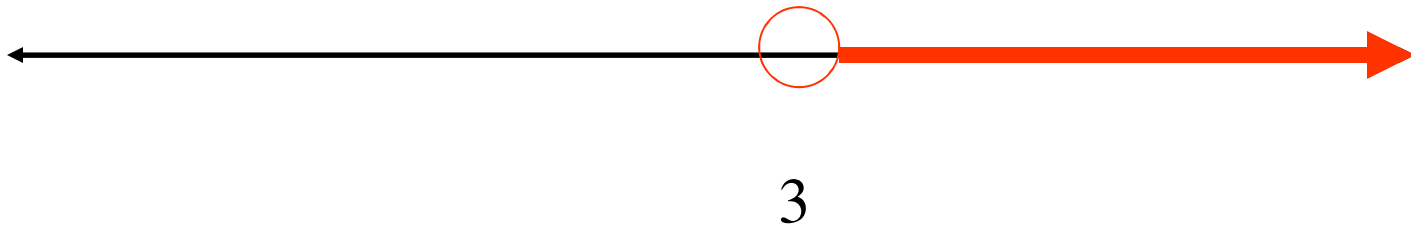
2. The only difference between solving inequalities rather than equations, is . . .

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**when you multiply or divide both sides of an inequality by a negative number you must reverse the inequality sign.**

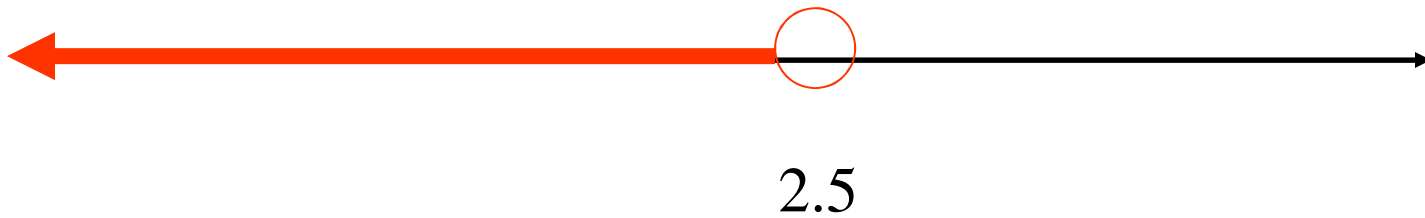
3. What does the graph of  $x > 3$  look like ?

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4. What does the graph of  $2.5 > x$  look like ?

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5. Write an inequality to define the following: At least 600 people( $p$ ) attended a school play.

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$$p \geq 600$$

6. Write an inequality to define the following: An elevator can carry at most 15 people ( $p$ ).

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An elevator can carry at most 15 people (p).

$$p \leq 15$$

7. Solve the following inequality:  $h + 3 > 2$

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$$h + 3 > 2$$

$$\begin{array}{r} -3 \\ -3 \end{array}$$

$$h > -1$$

8. Solve the following inequality:  $t - 4 < -9$

8. Solve the following inequality:

$$t - 4 < -9$$

$$+4 \quad +4$$

$$t < -5$$

9. Solve the following inequality:  $8m \geq -24$

9. Solve the following inequality:

$$8m \geq -24$$

$$\frac{\quad}{8} \geq \frac{-24}{8}$$

$$m \geq -3$$

10. Solve the following inequality:  $-6w \leq 12$

10. Solve the following inequality:

$$-6w \leq 12$$

$$\begin{array}{r} \text{-----} \quad \text{-----} \\ -6 \quad \quad -6 \end{array}$$

$$w \geq -2$$

11. Solve the following inequality:  $-\frac{3}{5}n \geq -9$

11. Solve the following inequality:

$$-\frac{3}{5}n \geq -9$$

$$* -\frac{5}{3} \quad * -\frac{5}{3}$$

$$\underline{n} \leq 15$$

12. Solve the following inequality:  $0 < 4c$

12. Solve the following inequality:

$$0 < 4c$$

$$\frac{\quad}{4} < \frac{\quad}{4}$$

$$0 < c \text{ or } c > 0$$

13. You have an allowance of \$12.00. You buy a discount movie ticket that costs at least \$3.50 and popcorn that costs \$2.75. Write an inequality to find how much you have for other spending (s).

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$$12 - (3.5 + 2.75) \geq s$$

14. Suppose you earn \$7.25 per hour working part-time as a florist. Write an inequality to find how many hours (h) you must work to earn at least \$200.

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$$7.25h \geq 200$$

15. Solve the inequality:  $3n + 5 > -1$

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$$3n + 5 > -1$$

$$- 5 \quad - 5$$

$$3n > -6$$

-----

$$3 \quad 3$$

$$\mathbf{n > -2}$$

16. Solve the following inequality:

$$6(c - 1) \leq -18$$

16. Solve the following inequality:

$$6(c - 1) \leq -18$$

$$6c - 6 \leq -18$$

$$+ 6 \quad + 6$$

$$6c \leq -12$$

-----

$$6 \quad 6$$

$$\underline{c} \leq -2$$

17. Solve the following inequality:

$$3m > 5m + 12$$

17. Solve the following inequality:

$$3m > 5m + 12$$

$$- 5m \quad -5m$$

$$-2m > 12$$

-----

$$-2 \quad -2$$

$$**m < -6**$$

18. Solve the following inequality:

$$4 + x/2 > 2x$$

18. Solve the following inequality:

$$4 + x/2 > 2x$$

$$- x/2 \quad - x/2$$

$$4 > 1.5x$$

-----

$$1.5 \quad 1.5$$

$$2 \frac{2}{3} > x$$

19. Solve the following inequality:

$$-\frac{6}{7}y - 6 \geq 42$$

19. Solve the following inequality:

$$-\frac{6}{7}y - 6 \geq 42$$

$$+ 6 \quad + 6$$

$$-\frac{6}{7}y \geq 48$$

$$* -\frac{7}{6} \quad * -\frac{7}{6}$$

$$y \leq -56$$

20. Trenton sells electronic supplies. Each week he earns \$190 plus a commission of 4% of his sales. This week his goal is to earn at least \$500. Write an inequality to find the amount of sales ( $s$ ) he must have to reach his goal.

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$$190 + .04s \geq 500$$

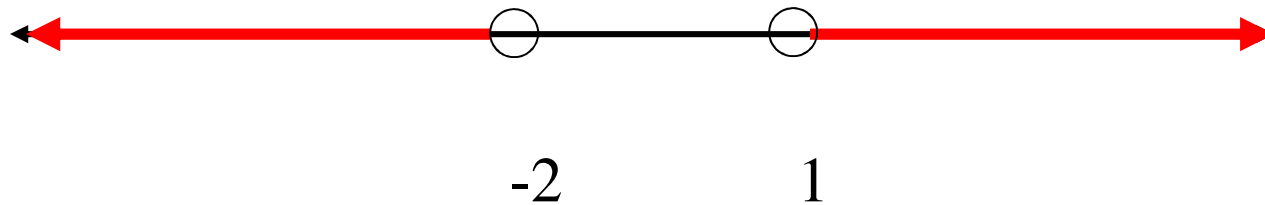
21. Graph the solution to the following compound inequality:  $x > -3$  and  $x < 2$

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22. Graph to the solution to the following compound inequality:  $m < -2$  or  $m > 1$

22. Graph to the solution to the following compound inequality:  
 $m < -2$  or  $m > 1$



23. Graph the solution to the following compound inequality:

$$-3 \leq k \leq 4$$

23. Graph the solution to the following compound inequality:

$$-3 \leq k \leq 4$$



24. Solve and graph the solution to the following compound inequality:

$$-3 < z - 1 < 3$$

24. Solve and graph the solution to the following compound inequality:

$$-3 < z - 1 < 3$$

$$+ 1 \quad + 1 \quad + 1$$

$$-2 < z < 4$$



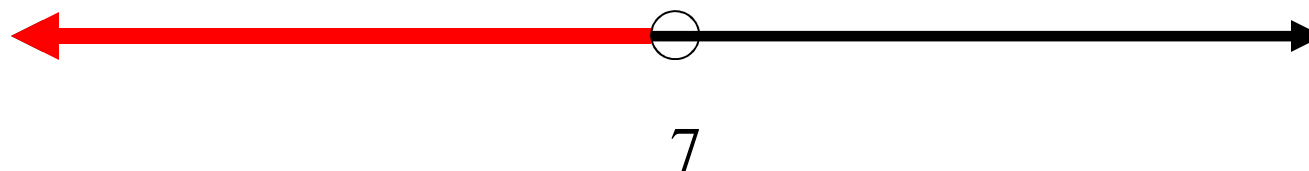
25. Solve and graph the following compound inequality:

$$2t < -4 \quad \text{or} \quad 7t < 49$$

25. Solve and graph the following compound inequality:

$$\begin{array}{ccc} 2t < -4 & \text{or} & 7t < 49 \\ \text{-----} & & \text{-----} \\ 2 & & 7 \end{array}$$

$$t < -2 \quad \text{or} \quad t < 7$$



26. Solve and graph the solution to the following equation:

$$|y| = 5$$

26. Solve and graph the solution to the following equation:  $|y| = 5$

$$y = 5 \quad \text{or} \quad y = -5$$

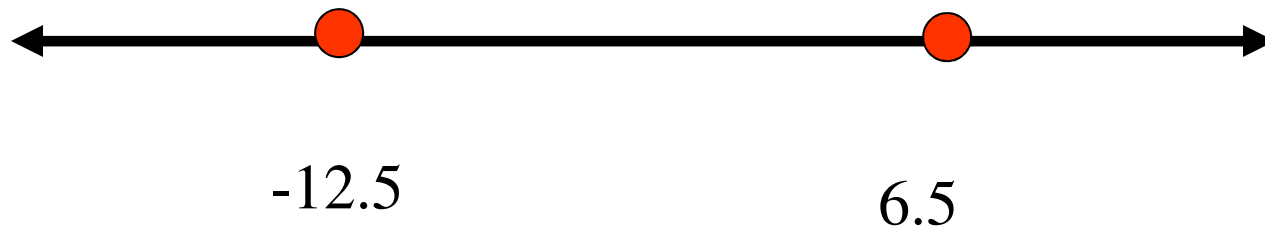


27. Solve and graph the solution to the following equation:

$$|p + 3| = 9.5$$

27. Solve and graph the solution to the following equation:  $|p + 3| = 9.5$

$$\begin{array}{rcl} p + 3 = 9.5 & \text{or} & p + 3 = -9.5 \\ -3 \quad -3 & & -3 \quad -3 \\ p = 6.5 & & p = -12.5 \end{array}$$



28. Solve the following equation or inequality:

$$|3x + 5| > 2$$

28. Solve the following equation or inequality:

$$|3x + 5| > 2$$

$$3x + 5 > 2 \quad \text{or} \quad 3x + 5 < -2$$

$$\quad -5 \quad -5 \qquad \qquad \quad -5 \quad -5$$

$$3x > -3 \qquad \text{or} \qquad 3x < -7$$

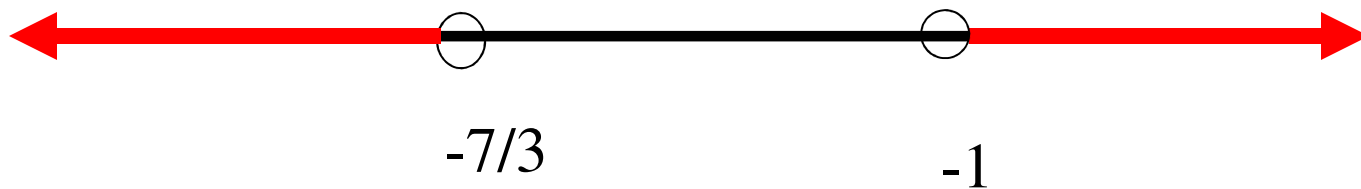
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$$3 \quad 3$$

$$3 \quad 3$$

$$x > -1 \qquad \text{or} \qquad x < -7/3$$



29. Solve and graph the solution to the following inequality:

$$-11 - |3z| < -2$$

29. Solve and graph the solution to the following inequality:

$$\begin{array}{r} -11 - |3z| < -2 \\ + 11 \qquad + 11 \\ \hline -|3z| < 9 \\ \hline -1 \qquad -1 \\ |3z| < -9 \end{array}$$

No solution

30. Solve and graph the solution to the following inequality:

$$4 | k + 5 | > 8$$

30. Solve and graph the solution to the following inequality:

$$4|k + 5| > 8$$

$$\frac{\text{-----}}{4} \quad \frac{\text{----}}{4}$$

$$|k + 5| > 2$$

$$k + 5 > 2 \quad \text{or} \quad k + 5 < -2$$
$$\quad -5 \quad -5 \qquad \quad -5 \quad -5$$

$$k > -3 \quad \text{or} \quad k < -7$$



# Question 31

Solve the following proportion:

$$\frac{2.1}{6} = \frac{x}{4}$$

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Solve the following proportion:

$$\frac{2.1}{6} = \frac{x}{4}$$

$$4(2.1) = 6x$$

$$8.4 = 6x$$

$$\frac{8.4}{6} = \frac{6x}{6}$$

$$x = 1.4$$

## Question 32

Solve:  $\frac{x + 2}{3} = \frac{x}{2} + 5$

# Question 32

Solve the following equation:

$$\frac{x + 2}{3} = \frac{x}{2} + 5$$

$$\frac{x + 2}{3} = \frac{x}{2} + \frac{10}{2}$$

$$\frac{x + 2}{3} = \frac{x + 10}{2}$$

$$2(x + 2) = 3(x + 10)$$

$$2x + 4 = 3x + 30$$

$$x = -26$$

## Question 34

Solve:  $\frac{x + 2}{3} = \frac{x + 5}{2}$

## Question 34

Solve:  $\frac{x + 2}{3} = \frac{x + 5}{2}$

$$2(x + 2) = 3(x + 5)$$

$$2x + 4 = 3x + 15$$

$$**x = -11**$$

## Question 35

A tree 15 feet tall casts a shadow 22 feet tall. How tall is the building next to it that casts a 158 foot shadow? Write and solve using a proportion.

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A tree 15 feet tall casts a shadow 22 feet tall. How tall is the building next to it that casts a 158 foot shadow? Write and solve using a proportion.

$$\frac{15}{22} = \frac{x}{158}$$

$$15(158) = 22x$$

$$x = 107 \frac{72}{99}$$

## Question 36

The map key says 2 ins represents 5 miles. If this is true, how far apart in miles are two cities that are 27.5 inches apart on the map? Write and solve using a porportion.

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The map key says 2 ins represents 5 miles. If this is true, how far apart in miles are two cities that are 27.5 inches apart on the map? Write and solve using a proportion.

$$\frac{2}{5} = \frac{27.5}{x}$$

$$2x = 5(27.5)$$

$$x = 68.75$$