Name_____

Solving Inequalities

Date_____ Period____

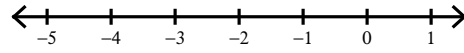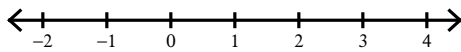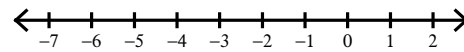**Solve each inequality and graph its solution.**
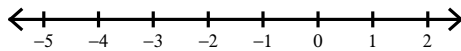
1) $0 > 3x - 3 - 6$
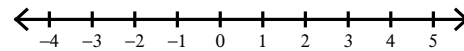

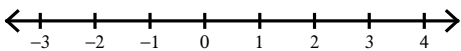2) $4x + 1 - 1 \geq -8$

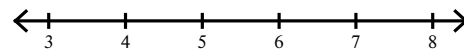3) $-1 \leq 2n + 4 - 5$
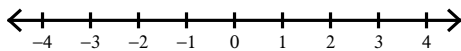

4) $-6 > 5n + 5 + 4$

5) $0 \leq 2n + 3n$

6) $2p - 4p \leq -2$

7) $7 < -(-k - 3) + 2$

8) $3 - 2(n - 4) > -1$

9) $-5(1 - 4a) > -5$

10) $-2(b + 1) + 4 < 10$

11) $a - 15 > -4(-6 + 3a)$

$$\xleftarrow{\hspace{0.3cm}} \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \quad \underset{5}{+} \xrightarrow{\hspace{0.3cm}}$$

12) $3(6b - 1) > 18 - 3b$

$$\xleftarrow{\hspace{0.3cm}} \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \quad \underset{5}{+} \xrightarrow{\hspace{0.3cm}}$$

13) $26 + m \geq 5(-6 + 3m)$

$$\xleftarrow{\hspace{0.3cm}} \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \quad \underset{5}{+} \quad \underset{6}{+} \quad \underset{7}{+} \xrightarrow{\hspace{0.3cm}}$$

14) $20 - 2p > -2(p + 2) + 4p$

$$\xleftarrow{\hspace{0.3cm}} \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \quad \underset{5}{+} \quad \underset{6}{+} \quad \underset{7}{+} \quad \underset{8}{+} \quad \underset{9}{+} \xrightarrow{\hspace{0.3cm}}$$

15) $x + 1 + 1 + 6x > 3(x - 4) - (x - 4)$

$$\xleftarrow{\hspace{0.3cm}} \underset{-5}{+} \quad \underset{-4}{+} \quad \underset{-3}{+} \quad \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \xrightarrow{\hspace{0.3cm}}$$

16) $-6(1 + 6x) < 6(1 - 5x)$

$$\xleftarrow{\hspace{0.3cm}} \underset{-6}{+} \quad \underset{-5}{+} \quad \underset{-4}{+} \quad \underset{-3}{+} \quad \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \xrightarrow{\hspace{0.3cm}}$$

17) $2(1 - 4r) < -2(r + 3) - 4$

$$\xleftarrow{\hspace{0.3cm}} \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \xrightarrow{\hspace{0.3cm}}$$

18) $-6(1 + 2x) \geq 6(2x - 1) + 2x$

$$\xleftarrow{\hspace{0.3cm}} \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \xrightarrow{\hspace{0.3cm}}$$

19) $-2(1 - 5x) > -(x + 1) - 1$

$$\xleftarrow{\hspace{0.3cm}} \underset{-5}{+} \quad \underset{-4}{+} \quad \underset{-3}{+} \quad \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \quad \underset{3}{+} \quad \underset{4}{+} \quad \underset{5}{+} \xrightarrow{\hspace{0.3cm}}$$

20) $5x - (x + 2) > -5(1 + x) + 3$

$$\xleftarrow{\hspace{0.3cm}} \underset{-3}{+} \quad \underset{-2}{+} \quad \underset{-1}{+} \quad \underset{0}{+} \quad \underset{1}{+} \quad \underset{2}{+} \xrightarrow{\hspace{0.3cm}}$$

Critical thinking questions:

21) Write an inequality with x on both sides whose solution is $x \geq 2$

22) Name one particular solution to question #20.

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Solve each inequality and graph its solution.

1) $0 > 3x - 3 - 6$

2) $4x + 1 - 1 \geq -8$

3) $-1 \leq 2n + 4 - 5$

4) $-6 > 5n + 5 + 4$

5) $0 \leq 2n + 3n$

6) $2p - 4p \leq -2$

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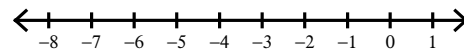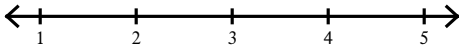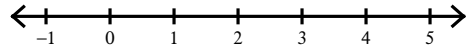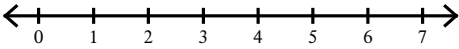8) $3 - 2(n - 4) > -1$

9) $-5(1 - 4a) > -5$

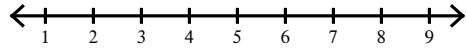10) $-2(b + 1) + 4 < 10$

-1-

11) $a - 15 > -4(-6 + 3a)$

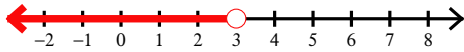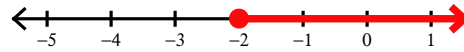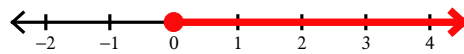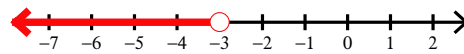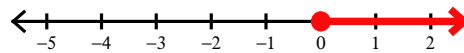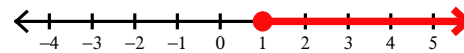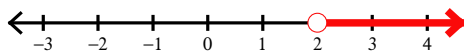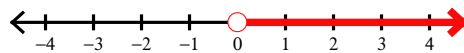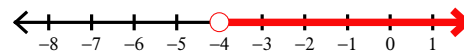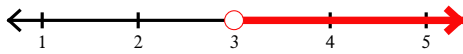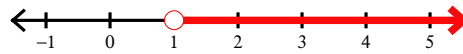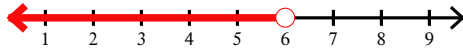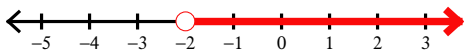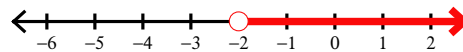12) $3(6b - 1) > 18 - 3b$

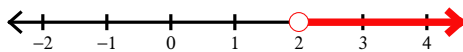
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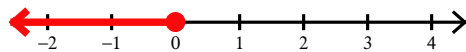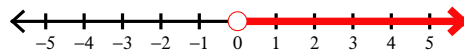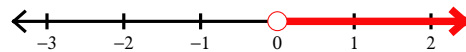

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Critical thinking questions:

21) Write an inequality with x on both sides whose solution is $x \geq 2$

Many answers. Ex: $2x \geq x + 2$

22) Name one particular solution to question #20.

Any number greater than zero. Ex: 4.7

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