

Name \_\_\_\_\_

8A; Algebra 1

Date \_\_\_\_\_

Period \_\_\_\_\_

Extra Review for Algebra Exam #2

Extra Review #1

1) Solve the following equation and tell whether each has one, zero, or infinitely many solutions.

$$8x + 4 = 4(2x + 1)$$

2) Solve the linear inequality, write your answer in set notation and graph your solution on a number line

$$7(3x + 4) < 10 - 3x$$

Solve. Write the solution in set notation. Graph the solution

$$3) 2 - x < 1 \text{ OR } -5x + 1 > 16$$

$$4) -4x - 3 > -7 \text{ AND } -3x - 2 \leq 7$$

$$5) 12 \leq 4n < 28$$

Solve the following

6)  $2|x-3|+1=5$

7)  $-2|x+1|+4=-4$

8)  $3|x|=24$

9)  $5+|x|=14$

10)  $7f + g < 5$ , for  $f$

11)  $r > wp$ , for  $p$

12)  $bc + 3g \leq 2k$ , for  $c$

13)  $2c + 4d = 10$ , for  $d$

14)  $k = \frac{1}{5}ab$  for  $b$

15)  $\frac{1}{3}(9n+6) = 5$

$$16) -4(5y - 6) =$$

17) Which property of equality can be used to justify this step?

$$\begin{array}{r} 15 - 10x = 6x \\ +10x \quad +10x \\ \hline 15 = 16x \end{array}$$

18) Solve:  $4(3t - 5) + 7 \geq 8t + 3$

19) Solve:  $5 - 10n > 45$

20) Solve & graph:  $4m - 17 < 6m + 25$

21) Solve & graph:  $-2 \leq x - 3 < 4$

22) Solve & graph:  $2x \leq 6$  or  $3x > 12$

23) Solve:  $4|x+2| = 24$

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Extra Review for Algebra Exam #2

Review #1

1) Solve the following equation and tell whether each has one, zero, or infinitely many solutions.

$$8x + 4 = 4(2x + 1)$$

$$\begin{array}{r} 8x + 4 = 8x + 4 \\ -8x \quad -8x \\ \hline \end{array}$$

4 = 4  
✓ Infinite amount of solutions

2) Solve the linear inequality, write your answer in set notation and graph your solution on a number line

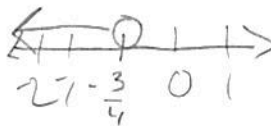
$$7(3x + 4) < 10 - 3x$$

$$\begin{array}{r} 21x + 28 < 10 - 3x \\ +3x \qquad +3x \end{array}$$

$$\begin{array}{r} 24x + 28 < 10 \\ \underline{-28 \quad -28} \\ 24x < -18 \\ \underline{\quad \quad 24} \quad \underline{\quad \quad 24} \end{array}$$

$$x < -\frac{3}{4}$$

$$\{x \in \mathbb{R} \mid x < -\frac{3}{4}\}$$

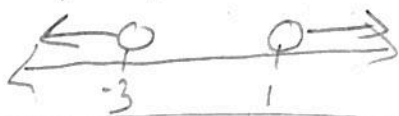


Solve. Write the solution in set notation. Graph the solution

3)  $2 - x < 1$  OR  $-5x + 1 > 16$

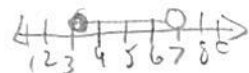
$$\begin{array}{r} 2 - x < 1 \\ -2 \quad -2 \\ \hline -x < -1 \\ \underline{-1 \quad -1} \\ x > 1 \end{array} \quad \text{OR} \quad \begin{array}{r} -5x + 1 > 16 \\ -1 \quad -1 \\ \hline -5x > 15 \\ \underline{-5 \quad -5} \\ x < -3 \end{array}$$

$$\{x \in \mathbb{R} \mid x > 1 \text{ or } x < -3\}$$



5)  $12 \leq 4n < 28$

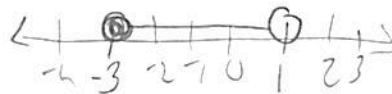
$$\begin{array}{r} 12 \leq 4n < 28 \\ \underline{\quad \quad 4} \quad \underline{\quad \quad 4} \\ 3 \leq n < 7 \end{array} \quad \{n \in \mathbb{R} \mid 3 \leq n < 7\}$$



4)  $4x - 3 > -7$  AND  $-3x - 2 \leq 7$

$$\begin{array}{r} 4x - 3 > -7 \\ +3 \quad +3 \\ \hline 4x > -4 \\ \underline{-4 \quad -4} \\ x > -1 \end{array} \quad \text{AND} \quad \begin{array}{r} -3x - 2 \leq 7 \\ +2 \quad +2 \\ \hline -3x \leq 9 \\ \underline{-3 \quad -3} \\ x \geq -3 \end{array}$$

$x > -1$  and  $x \geq -3$   
 $-3 \leq x < 1$



$$\{x \in \mathbb{R} \mid -3 \leq x < 1\}$$

Solve the following

6)  $2|x-3|+1=5$

$$\begin{aligned} \frac{2|x-3|}{2} &= \frac{4}{2} \\ |x-3| &= 2 \\ \begin{array}{l|l} x-3=2 & x-3=-2 \\ +3 & +3 \\ \hline x=5 & x=1 \end{array} \end{aligned}$$

8)  $3|x|=24$

$$\begin{aligned} \frac{3|x|}{3} &= \frac{24}{3} \\ |x| &= 8 \\ \boxed{x=8} \quad | \quad \boxed{x=-8} \end{aligned}$$

7)  $-2|x+1|+4=-4$

$$\begin{aligned} \frac{-2|x+1|}{-2} &= \frac{-8}{-2} \\ |x+1| &= 4 \\ \begin{array}{l|l} x+1=4 & x+1=-4 \\ -1 & -1 \\ \hline x=3 & x=-5 \end{array} \end{aligned}$$

9)  $5+|x|=14$

$$\begin{aligned} \frac{-5}{-5} & \quad \frac{-5}{-5} \\ |x| &= 9 \\ \boxed{x=9} \quad | \quad \boxed{x=-9} \end{aligned}$$

10)  $7f + g < 5$ , for f

$$\begin{aligned} \frac{7f}{7} & < \frac{5-g}{7} \\ \boxed{f < \frac{5-g}{7}} \end{aligned}$$

11)  $r > wp$ , for p

$$\begin{aligned} \frac{r}{w} & > p \\ \text{or } p & < \frac{r}{w}, \text{ if } w > 0 \\ p & > \frac{r}{w}, \text{ if } w < 0 \end{aligned}$$

*★ B/c you switch the direction of the symbol when dividing by a negative #*

*negative #*

*w ≠ 0*

12)  $bc + 3g \leq 2k$ , for c

$$\begin{aligned} \frac{bc}{b} & \leq \frac{2k-3g}{b} \\ \boxed{c \leq \frac{2k-3g}{b} \text{ if } b > 0} \end{aligned}$$

*negative #*

$$\boxed{c \geq \frac{2k-3g}{b} \text{ if } b < 0}$$

13)  $2c + 4d = 10$ , for d

$$\begin{aligned} \frac{4d}{4} &= \frac{10-2c}{4} \\ d &= \frac{10-2c}{4} \\ \boxed{d = \frac{5-c}{2}} \end{aligned}$$

*all #'s are divisible by 2, so simplify*

14)  $k = \frac{1}{5}ab$  for b

$$\begin{aligned} \frac{5k}{5} &= \frac{ab}{5} \\ \boxed{b = \frac{5k}{a}} \end{aligned}$$

15)  $\frac{1}{3}(9n+6)=5$

$$\begin{aligned} \frac{3n+2}{3} &= 5 \\ \frac{3n}{3} &= \frac{5}{3} \\ \boxed{n=1} \end{aligned}$$

*★ B/c you switch the direction of the symbol when you divide by a negative #*

*negative #*

$$16) -4(5y - 6) =$$

$$\boxed{-20y + 24}$$

17) Which property of equality can be used to justify this step?

$$\begin{array}{r} 15 - 10x = 6x \\ +10x \quad +10x \\ \hline 15 = 16x \end{array}$$

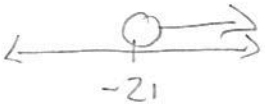
Addition Property of Equality

18) Solve:  $4(3t - 5) + 7 \geq 8t + 3$

$$\begin{array}{r} 12t - 20 + 7 \geq 8t + 3 \\ 12t - 13 \geq 8t + 3 \\ -8t \quad -8t \\ \hline 4t - 13 \geq 3 \\ +13 \quad +13 \\ \hline 4t \geq 16 \quad \boxed{t \geq 4} \end{array}$$

20) Solve & graph:  $4m - 17 < 6m + 25$

$$\begin{array}{r} 4m - 17 < 6m + 25 \\ -4m \quad -4m \\ \hline -17 < 2m + 25 \\ -25 \quad -25 \\ \hline -42 < 2m \\ \frac{-42}{2} < \frac{2m}{2} \\ -21 < m \quad \text{or } \boxed{m > -21} \end{array}$$



22) Solve & graph:  $\frac{2x}{2} \leq \frac{6}{2}$  or  $\frac{3x}{3} > \frac{12}{3}$

$$x \leq 3 \quad \text{or} \quad x > 4$$

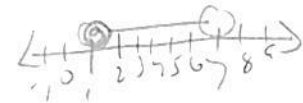


19) Solve:  $5 - 10n > 45$

$$\begin{array}{r} 5 - 10n > 45 \\ -5 \quad -5 \\ \hline -10n > 40 \\ -10 \quad -10 \\ \hline n < -4 \end{array}$$

21) Solve & graph:  $-2 \leq x - 3 < 4$

$$\begin{array}{r} -2 \leq x - 3 < 4 \\ +3 \quad +3 \quad +3 \\ \hline 1 \leq x < 7 \end{array}$$



23) Solve:  $4|x+2| = 24$

$$\begin{array}{r} 4|x+2| = 24 \\ \frac{4}{4} \quad \frac{24}{4} \\ \hline |x+2| = 6 \end{array}$$

$$\begin{array}{r} x+2 = 6 \\ -2 \quad -2 \\ \hline \boxed{x=4} \end{array}$$

$$\begin{array}{r} x+2 = -6 \\ -2 \quad -2 \\ \hline \boxed{x=-8} \end{array}$$