Math 1   Name_____

Chapter 1 TEST REVIEW   Period_____

Simplify each expression.

1) $-10 + 3(4n - 4)$

2) $-\dfrac{7}{3}\left(-\dfrac{5}{3}m + 2\right)$

Solve each equation.   Show all work.

3) $1 - 3p - 8 = 11$
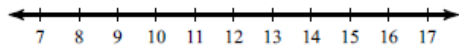
4) $-(x - 1) = 7x - 3(-2x - 5)$

Solve each proportion.   Show all work.
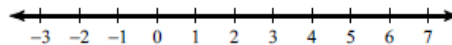
5) $\dfrac{3}{8} = \dfrac{m}{6}$

6) $\dfrac{r - 3}{5} = \dfrac{r + 7}{8}$

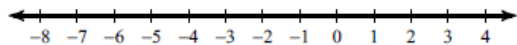**Solve each inequality. Graph its solution. Write the interval notation.**
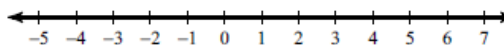
7) $2p - 2p > 0$

$$\begin{array}{cccccccccccc} & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 \end{array}$$

8) $-3(3n + 3) \geq -2(-n - 1)$

$$\begin{array}{cccccccccccc} & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$

9) $-3 \leq a - 2 \leq -2$

$$\begin{array}{cccccccccccc} -8 & -7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 \end{array}$$

10) $-4m + 1 < 5$ or $-m + 2 \leq -2$

$$\begin{array}{cccccccccccc} -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$

Solve each equation.   Show all work.

11) $\left| -2n + 2 \right| = 22$

12) $9 \left| n - 9 \right| + 7 = 97$

Solve each inequality. Graph the inequality. Write the interval notation.

13) $-2 \left| m \right| < -4$

$$\begin{array}{cccccccccccc} -7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 \end{array}$$

14) $4 \left| 2b - 4 \right| - 1 < -9$

$$\begin{array}{cccccccccccc} -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 \end{array}$$

Math 1   Name_____ KEY _____
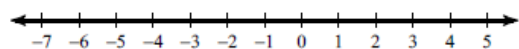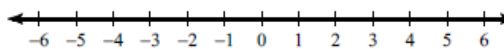
Chapter 1 TEST REVIEW   Period____

Simplify each expression.

1) $-10 + 3(4n - 4)$

$-10 + 12n - 12$ | Distribute |

$-22 + 12n$ | Combine like terms |

2) $-\dfrac{7}{3}\left(-\dfrac{5}{3}m + 2\right)$ | Distribute |

$\dfrac{35}{9}m - \dfrac{14}{3}$

Solve each equation. Show all work.

3) $1 - 3p - 8 = 11$ | Combine like terms |

$-7 - 3p = 11$

$\underline{+7 \qquad\quad +7}$ | Add 7 to both sides |

$\dfrac{-3p}{-3} = \dfrac{18}{-3}$ | Divide -3 to both sides |

$p = -6$

4) $-(x - 1) = 7x - 3(-2x - 5)$ | Distribute |

$-x + 1 = 7x + 6x + 15$ | Combine like terms |

$-x + 1 = 13x + 15$

$\underline{+x \qquad\qquad +x}$ | Add x to both sides |

$1 = 14x + 15$

$\underline{-15 \qquad\quad -15}$ | subtract 15 to both sides |

$\dfrac{-14}{14} = \dfrac{14x}{14}$ | divide 14 to both sides |

$-1 = x$

Solve each proportion. Show all work.

5) $\dfrac{3}{8} = \dfrac{m}{6}$

$(6)\left(\dfrac{3}{8}\right) = \left(\dfrac{m}{6}\right)(6)$ | multiple 6 to both sides |

$\dfrac{9}{4} = m$

6) $\dfrac{r-3}{5} = \dfrac{r+7}{8}$ | Cross multiply |

$8(r - 3) = 5(r + 7)$ | distribute |

$8r - 24 = 5r + 35$

$\underline{-5r \qquad\quad -5r}$ | Subtract 5r to both sides |

$3r - 24 = 35$ | add 24 to both sides |

$\underline{+24 \quad +24}$

| divide 3 to both sides | $\dfrac{3r}{3} = \dfrac{59}{3}$ $r = \dfrac{59}{3}$

Solve each inequality. Graph its solution. Write the interval notation.

7) $2p - 2p > 0$

Combine like terms

$0 > 0$

This if FALSE, so "No solution"

8) $-3(3n + 3) \geq -2(-n - 1)$

distribute

$-9n - 9 \geq 2n + 2$
$-2n - 2n$

Subtract 2n to both sides

$-11n - 9 \geq 2$
$+9 + 9$

add 9 to both sides

$\dfrac{-11n}{-11} \geq \dfrac{11}{-11}$

divide -11 to both sides

$n \leq -1$

Rule: divide by negative, flip inequality sign

Graph:
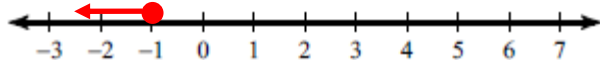
Interval notation: $(-\infty, -1]$

9) $-3 \leq a - 2 \leq -2$
$+2 + 2 + 2$

add 2 to all three areas

$-1 \leq a \leq 0$

Graph:
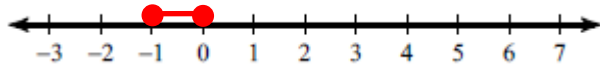
Interval notation: $[-1, 0]$

10) $-4m + 1 < 5$

	subtract 1 to both sides

$-1 \quad -1$

$\dfrac{-4m}{-4} < \dfrac{4}{-4}$

divide -4 to both sides
Rule: divide by negative, flip inequality sign

$m > -1$

or

$-m + 2 \leq -2$

subtract 2 to both sides

$-2 \quad -2$

$\dfrac{-m}{-1} \leq \dfrac{-4}{-1}$

divide -1 to both sides
Rule: divide by negative, flip inequality sign

$m \geq 4$

Graph:

Since one graph overlaps the second, then don't show the overlapped graph.

Interval notation: $[-1, \infty)$

11) $|-2n + 2| = 22$

Write as two equations

1st: $-2n + 2 = 22$

subtract 2 to both sides

$-2 \quad -2$

$\dfrac{-2n}{-2} = \dfrac{20}{-2}$

divide -2 to both sides

$n = -10$

2nd: $-2n + 2 = -22$

subtract 2 to both sides

$-2 \quad -2$

$\dfrac{-2n}{-2} = \dfrac{-24}{-2}$

divide -2 to both sides

$n = 12$

12) $9|n - 9| + 7 = 97$
$\quad -7 \quad -7$

| subtract 2 to both sides |

$\dfrac{9|n - 9|}{9} = \dfrac{90}{9}$

| divide 9 to both sides |

$|n - 9| = 10$

| Write as two equations |

1st: $n - 9 = 10$
$+9 \quad +9$

| add 9 to both sides |

$n = 19$

2nd: $n - 9 = -10$
$+9 \quad +9$
$n = -1$

| add 9 to both sides |

13) $\dfrac{-2|m|}{-2} < \dfrac{-4}{-2}$

| divide -2 to both sides |

$|m| > 2$

| Rule: divide by negative, flip inequality sign |

| Write as two inequalities |

1st: $m > 2$

2nd: $m < -2$

| Rule: on 2nd inequality, flip the inequality sign and set equal to opposite number |

Graph:
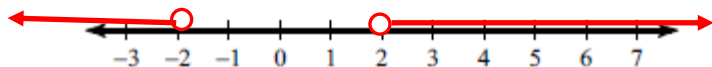
Interval notation: $(-\infty, -2) \cup (2, \infty)$

14) $4|2b - 4| - 1 < -9$

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

| add 1 to both sides |

$\dfrac{4|2b - 4|}{4} < \dfrac{-8}{4}$

| divide 4 to both sides |

$|2b - 4| < -2$

| Rule: absolute value are never negative so, "No solution" |

No solution