

3-7 PRACTICE

EQUALITIES

EXAMPLE 1)

$$|x| - 3 = 4$$

$$|x| - 3 + 3 = 4 + 3$$

$$|x| = 7$$

$$\pm |x| = 7 \quad \text{DISTRIBUTE}$$

TWO EQUATIONS

$$-x = 7 \quad +x = 7$$

$$\frac{(-1)(x)}{(-1)} = \frac{7}{-1} \quad x = 7$$

$$x = -7$$

Solution $x = -7$

$x = 7$

EXAMPLE 2

$$3|x+2| + 4 = 13$$

$$3|x+2| + 4 - 4 = 13 - 4$$

$$\frac{3|x+2|}{3} = \frac{9}{3}$$

$$\pm |x+2| = 3 \quad \text{DISTRIBUTE}$$

$$-|x+2| = 3 \quad +|x+2| = 3$$

$$-x-2 = 3 \quad x+2 = 3$$

$$-x-2+2 = 3+2 \quad x+2-2 = 3-2$$

$$-x = 5$$

$$x = 1$$

$$\frac{(-1)(x)}{(-1)} = \frac{5}{-1}$$

$$x = -5$$

Solution $x = 1$

$x = -5$

INEQUALITIES

$$|y+8| \geq 3 \quad \text{GREATER OR}$$

$$\pm |y+8| \geq 3 \quad \text{DISTRIBUTE}$$

$$+|y+8| \geq 3 \quad -|y+8| \geq 3$$

$$y+8 \geq 3 \quad -y-8 \geq 3$$

$$y+8-8 \geq 3-8 \quad -y-8+8 \geq 3+8$$

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

$$-y \geq 11$$

$$\frac{(-1)(y)}{(-1)} \geq \frac{11}{-1} \quad \text{Flip}$$

$$y \leq -11 \quad \text{SIGN}$$



LESS THAN

$$|y-2| \leq 1$$

$$\pm |y-2| \leq 1$$

$$+|y-2| \leq 1 \quad -|y-2| \leq 1$$

$$y-2 \leq 1 \quad -y+2 \leq 1$$

$$y-2+2 \leq 1+2 \quad -y+2-2 \leq 1-2$$

$$y \leq 3$$

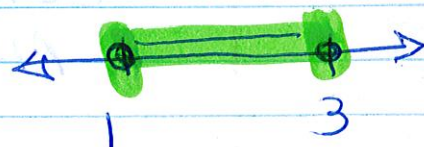
$$-y \leq -1$$

$$\frac{-y}{-1} \leq \frac{-1}{-1}$$

$$y \geq 1$$

$$1 \leq y \leq 3$$

and



3-7 PRACTICE ABSOLUTE VALUE

1) $|n| + 2 = 5$

2) $|x| - 5 = -1$

3) $|r - 9| = -3$

4) $4|y - 5| = 16$

5) $|3x + 0.5| - 1 = 7$

6) $|x + 3| < 10$

7) $|y - 1| \leq 8$

10) $|3c - 4| > 12$

11) $|d + \frac{2}{3}| + \frac{3}{4} = 0$

12) $-1|c + 4| = -3.6$

- 13) All REAL NUMBERS LESS THAN 3 UNITS FROM ZERO
- 14) All REAL NUMBERS AT LEAST 3 UNITS FROM -3
- 15) A CHILD TAKES A NAP AVERAGING THREE HOURS AND GETS AN AVERAGE OF 12 HOURS OF SLEEP AT NIGHT. NAP TIME AND NIGHT TIME SLEEP CAN EACH VARY BY 30 MINUTES. WHAT ARE THE POSSIBLE TIME LENGTHS FOR THE CHILD'S NAP AND NIGHT TIME SLEEP?