Creating Linear Inequalities Homework

≤ 10

1.) A rack contains at most 10 basketballs. If 3 players take a ball from the rack, write an inequality that displays the possible number of basketballs left on the rack.

x - # of basketballs on rack

$$\boxed{x \leq 10-3}$$

simplified...

$$\boxed{x \leq 7}$$

2.) Mackenzie likes to collect earrings. If she purchases two more pairs from the store, the total number in her collection will be greater than 28. Write an inequality that represents this scenario.

x - # of earrings

$$\boxed{x + 2 > 28}$$

solved...

$$\boxed{x > 26}$$

3.) Solve the inequality
$$2(x + 4) > 10$$

$$2x + 8 > 10$$
$$ -8 \quad -8$$
$$\frac{2x}{2} > \frac{2}{2}$$
$$\boxed{x > 1}$$

4.) Solve the inequality
$$3y + 5 \leq 6y - 22$$

$$-6y \qquad -6y$$

$$-3y + 5 \leq -22$$
$$ -5 \quad -5$$
$$\frac{-3y}{-3} \leq \frac{-27}{-3}$$
$$\boxed{y \geq 9}$$

flip the sign when dividing by a negative

5.) Karsen is on a tie-dye frenzy and wants to tie-dye several t-shirts and sweatshirts for herself and her friends. The <u>maximum</u> number of bottles of dye she can buy at a time is 20. It takes Karsen 2 bottles of dye to tie-dye t-shirts and 3 bottles of dye to tie-dye sweatshirts.

t - # of t-shirts
s - # of sweatshirts

a.) Write an inequality that represents this scenario.

$$\boxed{2t + 3s \leq 20}$$

b.) If Karsen wants to tie-dye a t-shirt and sweatshirt for herself and each of her 3 best friends, will she be able to purchase all the bottles she needs in one trip? Use the inequality you created to solve.

herself + 3 friends = 4 of each item of clothing

$$2(4) + 3(4) \leq 20$$
$$8 + 12 \leq 20$$
$$20 \leq 20 \quad \text{true!}$$

$$\boxed{\text{Yes, she will need exactly 20 bottles.}}$$