

1-8-19

Aim: SWBAT translate complex word problems.

HW: Packet Pages 18 - 20

Quiz tomorrow

Do Now: Correct hw

Homework

Solve algebraically.

Pg. 152 # 43. You run a race in 2.5 hours. The record winning time is 1.9 hours. How many minutes can you improve by to break the record?

ARITHMETIC
 $2.5 - 1.9 = 0.6$

ALGEBRAIC
 let $x = \#$ of hours

$$\begin{array}{r} 2.5 - x < 1.9 \\ -2.5 \quad -2.5 \\ \hline -x < -0.6 \\ \downarrow \quad \downarrow \\ x > 0.6 \\ \downarrow \\ 36 \text{ min} \end{array}$$

I need to improve by more than 36 minutes

Pg. 152 # 44. The frequency f of the human singing voice is between 81 hertz and about 1100 hertz. Which statement is not true about f ?

$$81 \leq f \leq 1100$$

A) $f \geq 81$

B) $f \leq 1100$

C) $81 \leq f$

D) $f \geq 1100$

Pg. 157 # 47. An elevator can hold a maximum of 2000 pounds. The average weight of a person is 150 pounds. Let p be the number of people the elevator can hold.

a. Write a multiplication inequality that models the situation.

$$150p \leq 2000$$

b. Solve the inequality.

$$\begin{array}{r} 150p \leq 2000 \\ \hline 150 \quad 150 \\ p \leq 13\frac{1}{3} \end{array}$$

c. What does the answer tell you about the number of people who can ride in the elevator?

The elevator can hold a maximum of 13 average sized people.

Pg. 158 # 52. John has test scores of 75, 84, 88, and 77 on four of his five science tests. He wants to get at least an average of 80 on his five tests. What is the lowest score that John can get on his last test to achieve his goal?

- A) 76 B) 79 C) 80 D) 81

Pg. 327 # 18. You have at most \$200 to spend on a health club membership. The initial fee to join is \$50. There is a monthly fee of \$32. How many months can you be a member without spending more than \$200?

ARITHMETIC

$$200 - 50 = 150$$

$$150 \div 32 = 4.6875$$

ALGEBRAIC

let $x = \#$ of months

$$\cancel{50} + 32x \leq 200$$

$$\underline{-30 \quad -50}$$

$$\frac{32x}{32} \leq \frac{150}{32}$$

$$x \leq 4.6875$$

I can only afford 4 full months of membership.

Pg. 327 # 19. You are making craft items to sell for \$2 each. The materials cost you \$55. You want to make a profit of at least \$100. Which inequality can you use to find the number of items you will need to sell?

- A) $2x - 55 \leq 100$ B) $2x - 55 \geq 100$ C) $2x + 55 \geq 100$ D) $2x + 55 \leq 100$

Pg. 328 # 21. A teen club has weekly dances. You can become a member of the club for \$30 a year and pay only \$4 to attend each dance. Otherwise, each dance costs \$6. How many dances do you have to attend so that becoming a member will cost less than paying the nonmember rate?

let $x = \#$ of dances

let $30 + 4x =$ price for a member

let $6x =$ price for a nonmember

$$30 + 4x < 6x$$

$$\underline{-4x \quad -4x}$$

$$\frac{30}{2} < \frac{2x}{2}$$

$$15 < x$$

After 15 dances, it's worth being a member.

COMPLEX WORD PROBLEMS

1. Connor went to the county fair with \$22.50 in his pocket. He bought a hot dog and a drink for \$3.75 and wanted to spend the rest of his money on ride tickets which cost \$1.25 each.

a) Write an inequality to represent the total spent where r is the number of tickets purchased.

b) Connor wants to use this inequality to determine whether he can purchase 10 tickets. Use substitution to determine whether or not he will have enough money.

c) What is the maximum number of tickets he can buy based upon the given information?

2. On a particular airline, checked bags can weigh no more than 50 pounds. Sally packed 32 pounds of clothes and five identical gifts in a suitcase that weighs 8 pounds.

a) Write an inequality to represent this situation.

b) What can be the maximum weight of each gift?

3. Shaggy earned \$7.55 per hour plus an additional \$100 in tips waiting tables on Saturday. He earned at least \$160 in all. Write an inequality and find the minimum number of hours, to the nearest hour, Shaggy worked on Saturday.

4. At most, Kyle can spend \$50 on sandwiches and chips for a picnic. He already bought chips for \$6 and will buy sandwiches that cost \$4.50 each. Write and solve an inequality to show how many sandwiches he can buy. Show your work and interpret your solution.

5. A youth summer camp has budgeted \$2000 for the campers to attend the carnival. The cost of each camper is \$17.95, which includes general admission to the carnival and 2 meals. The youth summer camp must also pay \$250 for the chaperones to attend the carnival and \$350 for transportation to and from the carnival. What is the greatest amount of campers that can attend the carnival if the camp must stay within their budgeted amount?

6. The carnival owner pays the owner of an exotic animal exhibit \$650 for the entire time the exhibit is displayed. The owner of the exhibit has no other expenses except for the daily insurance cost. If the owner of the animal exhibit wants to make more than \$500 in profits for the $5\frac{1}{2}$ days, what is the greatest daily insurance rate he can afford to pay?

7. Nancy's morning routine involves getting dressed, eating breakfast, making her bed, and driving to work. Nancy spends $\frac{1}{3}$ of the total time in the morning getting dressed, 10 minutes eating breakfast, 5 minutes making her bed, and the remaining time driving to work. If Nancy spends $35\frac{1}{2}$ minutes getting dressed, eating breakfast, and making her bed, how long is her drive to work?

Write and solve this problem, algebraically, using an equation.