

1-7-19

Aim: SWBAT translate word problems into mathematical inequalities.

HW: Packet Pages 16 - 17

Quiz Wednesday

Do Now: Check hw

Homework

Solve algebraically.

Pg. 138 # 30. You need 124 plastic forks for a party. At one store you buy the last 5 boxes, and each box contains 8 forks. At another store you find boxes that contain 12 forks. How many of these boxes do you need to buy?

ARITHMETIC

$$\begin{aligned} 5 \cdot 8 &= 40 \\ 124 - 40 &= 84 \\ 84 \div 12 &= 7 \end{aligned}$$

ALGEBRAIC

let x = # of boxes

$$\begin{aligned} 5 \cdot 8 + 12x &= 124 \\ 40 + 12x &= 124 \\ -40 & \quad -40 \\ \hline 12x &= 84 \\ \frac{12x}{12} &= \frac{84}{12} \\ x &= 7 \end{aligned}$$

I need to buy 7 boxes.

Pg. 138 # 31. The senior class at your school made a \$300 profit at the school fair by having a dunk tank. The dunk tank cost \$135 to rent, and the senior class charged \$5 for each person to play. If one third of people who participated were adults, how many adults participated?

ARITHMETIC

$$\begin{aligned} 300 + 135 &= 435 \\ 435 \div 5 &= 87 \\ \hline 87 \div 3 &= 29 \end{aligned}$$

ALGEBRAIC

let x = # of people

$$\begin{aligned} 5x - 135 &= 300 \\ +135 & \quad +135 \\ \hline 5x &= 435 \\ \frac{5x}{5} &= \frac{435}{5} \\ x &= 87 \end{aligned}$$

$$\frac{1}{3} \cdot 87 = 29$$

There were 29 adults who participated.

Pg. 138 # 33. A taxi cab costs \$2 plus an additional \$1.50 for every mile. You ride costs \$17 before the tip. How many miles did you go? Will it cost twice as much to go twice as far? Explain.

ARITHMETIC

$$\begin{aligned} 17 - 2 &= 15 \\ 15 \div 1.50 &= 10 \end{aligned}$$

ALGEBRAIC

let x = # of miles

$$\begin{aligned} 2 + 1.50x &= 17 \\ -2 & \quad -2 \\ \hline 1.50x &= 15 \\ \frac{1.50x}{1.50} &= \frac{15}{1.50} \\ x &= 10 \end{aligned}$$

I went 10 miles

$$\begin{aligned} 2 + 1.50x \\ 2 + (1.50)(20) \end{aligned}$$

$$2 + 30$$

$$32$$

No, going twice as far will cost \$32, not \$34.

Pg. 138 # 35. You have a job in which you make \$6 an hour plus tips. You made a total of \$34 yesterday. How much did you make in tips?

ARITHMETIC

ALGEBRAIC

I don't know. It depends on how many hours I worked.

Pg. 138 # 38. Amanda takes her car to the repair shop. The mechanic starts working on the car at 10:30 A.M., takes a 45 minute lunch break, and then continues working into the afternoon. The parts to fix the car cost \$350 and the labor costs \$80 per hour. Amanda pays \$730 in all. At what time does the mechanic finish the work?

ARITHMETIC

ALGEBRAIC

$$730 - 350 = 380$$

$$380 \div 80 = 4.75$$

let x = # of hours

$$\begin{array}{r} 350 + 80x = 730 \\ - 350 \qquad - 350 \\ \hline 80x = 380 \\ \underline{80} \quad \underline{80} \\ x = 4.75 \end{array}$$

↓
4 hrs 45 min

10:30 AM + 4 hrs 45 min + 45 min

4:00 PM

The mechanic finishes the car at 4 PM.

Aim: SWBAT translate word problems into mathematical inequalities.

Translating When a Variable Is Not Assigned

- Define a variable {state what the variable represents using let statement(s)}
- Identify the key words
- Translate into the order that the keywords require using the assigned variable
- Inequalities will contain one or more operations {+, -, ·, or ÷ (use a fraction bar to translate division)} and an inequality symbol (<, >, ≤, ≥)

Write an algebraic inequality to represent each of the following.

1	<p>Six times the difference of a number and 3 is more than 24.</p> <p>let $n = \text{the \#}$ $6(n - 3) > 24$</p>
2	<p>Nine more than 4 times a number is at least 30 plus 11 times the number.</p> <p>let $n = \text{the \#}$ $4n + 9 \geq 30 + 11n$</p>
3	<p>Three times a number divided by 4 is no more than 5 plus twice the number.</p> <p>let $n = \text{the \#}$ $\frac{3n}{4} \leq 5 + 2n$</p>

4. A taxi driver charges a flat fee of \$4 plus \$6 per mile. The tip is included in the mileage rate. Orlando only has \$22 to pay for his taxi ride. Write an inequality that would determine the greatest number of miles Orlando can ride in the taxi?

let $x = \text{\# of miles}$ $4 + 6x \leq 22$

5. Cicely has \$30 to spend on art supplies. She wants to buy as many pastels as possible after buying a sketchbook that costs \$6. The pastels cost at most \$4 each. Write an inequality that would determine the greatest number of pastels that she can buy?

let $x = \text{\# of pastels}$ $6 + 4x \leq 30$

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

ALGEBRAIC

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 ?

- 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.

- Write a multiplication inequality that models the situation.
- Solve the inequality.
- What does the answer tell you about the number of people who can ride in the elevator?

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

ALGEBRAIC

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?