

Notes: Inequalities Word Problems
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1. Tyler earned \$7.50 per hour plus an additional \$100 in tips waiting tables on Saturday. He earned at least \$160 in all. Write and solve an inequality to determine the minimum number of hours, to the nearest hour, that Tyler worked on Saturday.

Let $x = \# \text{ of hrs}$

$$7.50x + 100 \geq 160$$

$$\begin{array}{r} -100 \quad -100 \\ \hline 7.50x \geq 60 \\ \underline{7.50} \quad \underline{7.50} \end{array}$$

$x \geq 8$ means he can work more than 8 hrs.

Tyler can work a minimum of 8 hrs.

2. At most, Connor 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.

Let $x = \# \text{ of sandwiches}$

$$4.50x + 6 \leq 50$$

$$\begin{array}{r} -6 \quad -6 \\ \hline 4.50x \leq 44 \\ \underline{4.50} \quad \underline{4.50} \end{array}$$

$x \leq 9.\bar{7}$

Connor can buy 9 sandwiches.

3. On a particular airline, checked bags can weigh no more than 50 pounds. Erin packed 32 pounds of clothes and some gifts in her suitcase that weigh 5 pounds each. Write and solve an inequality to determine the maximum number of gifts she can pack.

Let $x = \#$ of gifts

$$\begin{array}{r} 5x + 32 \leq 50 \\ -32 \quad -32 \\ \hline 5x \leq 18 \\ \frac{5x}{5} \leq \frac{18}{5} \\ x \leq 3.6 \end{array}$$

Erin can pack 3 gifts.

4. The length of a rectangular fenced enclosure is 12 feet more than the width. If Farmer Shane has 100 feet of fencing, write an inequality to find the dimensions of the rectangle with the largest perimeter that can be created using 100 feet of fencing.

$P \leq 100$

length
 $x + 12$

width
 x

remember
 $P \leq 100$
or
 $100 \geq P$

classmate
width = 19ft
length = 31ft

$$P = 2l + 2w$$

$$100 \geq 2(x+12) + 2(x)$$

$$100 \geq 2x + 24 + 2x$$

$$100 \geq 4x + 24$$

$$\frac{100 - 24}{4} > \frac{4x}{4}$$

$$\frac{76}{4} > x$$

$$19 > x$$

$$x + 12$$

$$19 + 12$$

$$31$$

HOMEWORK

Use pages 20 - 22 to show your work.

Directions: Solve for each inequality and graph the solution set.

1. $2e + 7 < 15 + 4e$	2. $-3(3x + 1) < 15$
3. $\frac{1}{2}x + \frac{5}{3} \geq 3$	4. What is the largest integer in the solution set: $4.5 - 0.5x > x$
5. What is the largest integer in the solution set? $15x - 4 < 9 + 2x$	6. What is the smallest integer in the solution set? $3x \geq 2 - 2(x - 5)$
7. Which value is in the solution set $-5e > 35$? A -7 B 2 C -9 D 6	8. Which value is not in the solution set? $2e - 6 \geq 10$ A 8 B 4 C 12 D 32
9. Kevin went to the county fair with no less than \$44 in his pocket. He bought a drink for \$3.75 and then wanted to spend the rest of his money on ride tickets, which cost \$1.25 each. Write and solve an inequality to determine the least number of ride tickets he could purchase.	
10. Members of a baseball team raised \$979 to go to a tournament. They rented a bus for \$450 and budgeted \$28.75 per player for meals. Write and solve an inequality to determine the greatest number of players they can afford to bring.	