Algebra RH

Solving Inequality Word Problems

Write an inequality to describe each problem below. ***Work on a separate sheet of paper.***

1. Five times a number decreased by 8 is less than 33. What is the largest integer that makes this true?

2. The sum of two consecutive odd integers is not more than 3 times the smaller number increased by 5. Find the smallest possible integers.

3. A taxi charges $6.00 for the first mile and $4.00 for each additional mile. How far can a person travel before the cost exceeds $13.00?

4. Tacky Times charges $2500 plus $45 per person for a party. Perfect Party charges $3200 plus $40 per person. How many people must attend a party for Perfect Party to be less expensive?

5. The width of a rectangle is 20 less than twice its length. If the perimeter must be more than 125cm, find the smallest possible whole number values for the length and the width.

6. What is the minimum number of miles that can be driven so that renting from Company A is cheaper than renting from Company B?

   Company A: *$40 one time surcharge, $0.08 per mile*
   Company B: *$28 one time surcharge, $0.13 per mile*

7. A mechanic earns $35 per hour but 25% of his earnings are deducted for taxes. How many hours must he work to earn no less than $550 in after tax income?

8. A coin bank contains only nickels, dimes and quarters. There are twice as many nickels as dimes and 1/3 as many quarters as nickels. The total value of the coins does not exceed $5.00. How many coins of each type are there?

Write and solve an inequality for each word problem. Show all work on a separate sheet of paper.

1. The sum of two numbers is at least 80. One number is 4 less than twice the other. What is the smallest integer value of each number?

2. The length of a rectangle exceeds its width by 3. If each dimension is increased by 3, the perimeter will be at least 100. Find the smallest possible whole number values for the length and width.

3. The sum of two consecutive even integers is not less than 3 times the lesser integer decreased by 16. What are the greatest possible integers that make this true?

4. An empty book crate weighs 30lb. What is the greatest number of books weighing 1.25 lbs each that can be packed in the crate if the maximum weight of the crate and books is 55 lbs.

5. Citi-Bank charges $1.75 per month plus $0.08 per check. Best Bank charges $2.50 per month plus $.06 per check. When is a checking account at Citi-Bank a better deal than at Best Bank in one months time?

6. XYZ Rentals charges $18.75 per day and $0.16 per mile. ABC Rentals charges $15.75 per day and $0.19 per mile. How many miles must be driven in one day for XYZ to be a cheaper rental?

7. Ken has 22 coins, some are dimes and the rest are quarters. The coins are worth more than $3.40. What is the least number of quarters and the greatest number of dimes possible for this to be true?

8. A student has grades of 75% and 81% on the first two of three exams. In order to have an average over 80%, what grade must the student receive on the 3^{rd} exam?