Week 24 Pre-Algebra Assignment:

Day 1: Chapter 10 test
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Notes on Assignment:

Chapter 10 test

For the test, you will need to:

- Given a set of data, find the
  - Mean
  - Median
  - Mode
  - Lower quartile
  - Upper quartile
  - Range
- Make a frequency distribution table and find the mean and modal interval.
- Make a histogram
- Calculate the degrees needed for a circle graph
- Determine the type of sample (random, systematic, convenience, or cluster)
- Determine whether something is a combination or permutation
- Evaluate combinations, permutations, and probabilities

Pages 453-456 (#1-36)

Work to show:
#1-14: Answers only
#15-20: Answers only
#21-36: Show work

#1-8: These numbers are all perfect squares. Remember that you cannot take the square root of a negative number. It's ok to find the negative square root, like $-\sqrt{9}$ and get -3 but it is not ok to try to find $\sqrt{-9}$.

#9-14: Think about the perfect squares on each side of the number. Then think of the square roots of those perfect squares on each side of the number. Those square roots are your answer.

#15-20: Use a calculator for these and round to the nearest tenth.

General Notes for #21-24:

The order of operations is:

1. Grouping Symbols (parentheses, radical symbols, division bar, etc.)
2. Exponents and Radicals
3. Multiply and divide, left to right
4. Add and subtract, left to right

#21-24: Remember that the square root symbol is a grouping symbol, so you have to do the addition underneath before you take the square root.

#25: Once you get a single number under the radical, simplify the radical to a single number. Then follow the order of operations to finish the problem:

$$3\sqrt{120+49}-\sqrt{36}$$
$$3\sqrt{169}-\sqrt{36}$$
$$3(13)-6$$
$$39-6$$
$$33$$

#29: Calculate the square roots to single numbers first, then follow the order of operations to finish.

#31: Do what is in the ( ) first.

#32-36: Calculating the square roots comes before any multiplication or division.

Pages 459-460 (#2-34 even)

Work to show:

All Problems: Write the problem and show the steps for solving. Also show the check for each solution.

General Notes for this section – Follow the steps for solving Radical Equations:

1. Isolate the radical on one side.
2. Square both sides.
3. Solve the resulting equation.
4. Check the solution.

***When you square both sides of an equation you sometimes introduce extraneous solutions. The only way to know if you have an extraneous solution is to check it in the original problem.

#2-4: These equations are ready to be squared on both sides.

#6: You need to subtract 16 from both sides before you square.

#8: Divide both sides by 8 before you square.

#14: After you add 2 to both sides you need to square both sides. Notice that you have a 4x under the radical instead of just an x. But when you square both sides, the act of squaring "undoes" the radical, so what is underneath does not change. So when you square the $\sqrt{4x}$ you will get 4x. Don't square the 4.

#20: Carefully follow the steps to solve. Isolate the radical first by adding 3 to both sides and then dividing by 5. Then square both sides. After you square the radical you will be left with 2x+1 on the left side of the equation. Finish solving and remember to check your solution.

$$5\sqrt{2x+1}-3=22$$
$$5\sqrt{2x+1}-3+3=22+3$$
$$5\sqrt{2x+1}=25$$
$$\frac{5\sqrt{2x+1}}{5}=\frac{25}{5}$$
$$\sqrt{2x+1}=5$$
$$(\sqrt{2x+1})^2=5^2$$
$$2x+1=25$$
$$2x+1-1=25-1$$
$$2x=24$$
$$\frac{2x}{2}=\frac{24}{2}$$
$$x=12$$

#26: Don't let the negative in front of the x throw you off. Put a 1 in front of the x to help you.

#30: Square both sides right away. Notice how both of the radicals disappear? Now solve the equation.

#32-34: These are not 5-step word problems. Use x or n for the number and translate into a radical equation. Then solve.

Pages 463-464 (#2-32 even)

Work to show:

All Problems: Write the problem and show the steps for solving.

General Notes for this section – Follow the steps for solving equations with exponents:

1. Isolate the squared term or quantity on one side.
2. Take the square root of both sides and put in the ± sign.
3. Simplify the radical and solve the resulting equation.

*** If you end up having a negative under the radical, remember that you can't do that, so there is no solution for the equation.

#2-20: These are all 2-step equations (except #16). Add or subtract to isolate the squared term, then take the square root of both sides, remembering your ± sign.

#16: This is a 3-step problem:

$$2x^2 - 12 = 18$$
$$2x^2 - 12 + 12 = 18 + 12$$
$$2x^2 = 30$$
$$\frac{2x^2}{2} = \frac{30}{2}$$
$$x^2 = 15$$
$$\sqrt{x^2} = \pm\sqrt{15}$$
$$x = \pm\sqrt{15}$$

#22-24: Do these like #16.

#28: Multiply both sides by 5 before taking the square root.

#30: Add the 8 to both sides before multiplying by 12.

#32: When you take the square root of both sides, the square root will "undo" the square and all that's left on the left will be 2x-5.

Page 454 (#44-52 even)

Work to show:

#44-48: Show work for solving
#50: Show work getting into slope-intercept form
#52: Graph

#44: Remember to get the variable terms on one side and the numbers on the other side. Use adding and subtracting to accomplish this.

#48: You have to change the mixed number into an improper fraction before you multiply each side by the reciprocal.

#50. Solve this equation for y so that the equation is in the form y=mx+b. Then m is the slope and (0,b) is the y-intercept.

#52: Write the border equation, dotted or solid, graph the border, and test a point to see which side to shade.

Page 461 (#42-48)

Work to show:

#42: Two answers
#44-48: Show any work needed.

#42: The markup is a percentage of the cost. Find that first. Then add it to the cost to find the retail price.

#44-48: You can use a calculator for these problems.

Page 464 (#44-49)

Work to show:

#44-45: 5 steps
#46-49: Answers only

#44: You If a bag of oranges costs a third as much as a bag of apples, we could use x for the cost of a bag of apples and $\frac{1}{3}x$ for the cost of a bag of oranges. But let's think about it this way: If a bag of oranges costs a third as much as a bag of apples, then the cost of a bag of apples is *3 times* the cost of a bag of oranges. Let's let x = the cost of a bag of oranges and $3x$ = the cost of a bag of apples.

#45: There are 3 things to find here so you will need 3 statements for step 2. Which do you know the least about, the number of pens, pencils, or erasers? Let x = that amount and come up with amounts for the other 2 based on x.

#46-49: You can use a calculator for these problems.