Week 28 Algebra 1 Assignment:

Day 1: Chapter 12 test
Day 2: p. 517 #1-9 odd, 11-17, 21-24
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Day 4: pp. 525-526 #1-13 odd, 17-21
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Notes on Assignment:

Chapter 12 test:

For the test:

- Simplify rational expressions
- Multiply rational expressions
- Divide rational expressions
- Add rational expressions
- Subtract

Page 517:

General notes for this section: To solve a rational equation with numerical denominators:

1. Put ( ) around each numerator that is a binomial or greater.
2. Change any subtraction to addition.
3. Determine (and state) the LCM.
4. Multiply through by the LCM to clear the fractions. (Write the LCM beside each fraction and cancel. Be careful in multiplying what is left.)
5. Solve the resulting equation.

Work to show:

All problems: Show work as you did throughout the assignments in this chapter.

#7: Make sure to put the $a+3$ and $a-2$ in ( ) right away. This will help you multiply correctly.

#16-17: These are 5-step word problems.

#17: Let x = the original sum. Then you need to represent the amount spent on games and rides, and the amount spent on food and transportation. For your equation,

you should add the amount spent on games and rides, and the amount spent on food and transportation to get the total amount spent.

#20: Get a common denominator.

#21: Clear the fractions.

#23: You can use any method to solve this system (though I would not recommend graphing.)

#24: This 5-step problem uses the Pythagorean theorem.

Pages 521-522:

General notes for this section: To solve a rational equation:

1. Put ( ) around each numerator that is a binomial or greater.
2. Change any subtraction to addition.
3. Factor all denominators.
4. State your restrictions on the variable, based on the denominators.
5. Determine the LCM.
6. Multiply through by the LCM to clear the fractions. (Write the LCM beside each fraction and cancel. Be careful in multiplying what is left.)
7. Solve the resulting equation.
8. Check for extraneous solutions. (The solution cannot be one of your restrictions.)

Example: Solve $\frac{x+3}{x-4}=\frac{4}{x}+\frac{28}{x^2-4x}$

Rewrite the problem putting in ( ) and factoring the denominators:

$$\frac{(x+3)}{(x-4)}=\frac{4}{x}+\frac{28}{x(x-4)}$$

The LCM is $x(x-4)$.

The restriction is that $x\neq 0$ and $x\neq 4$.

Multiply through by the LCM and then cancel to clear all fractions:

$$x(x-4)\frac{(x+3)}{(x-4)}=\frac{4}{x}x(x-4)+\frac{28}{x(x-4)}x(x-4)$$

$$x(x+3)=4(x-4)+28$$

Solve the equation:

Solve the equation:

$$x(x+3)=4(x-4)+28$$
$$x^2+3x=4x-16+28$$
$$x^2-x-12=0$$
$$(x-4)(x+3)=0$$
$$x=4 \ \ or \ \ x=-3$$

Since your restriction says that $x \neq 4$, cross out that solution.

You are left with the solution $x=-3$.

Work to show:

#1-18: Write the problem and follow the steps outlined above to solve.
#19-22: These are 5-step word problems.
#25-29: Answer as directed.

#5: When you multiply each side by (x+2), remember to multiply all of the way through by the 3 on the right side.

#19-22: These are 5-step word problems.

#19: The equation for this problem is going to look like $\frac{5+x}{11+x}=\frac{3}{4}$

#22: Remember that when 2 numbers add to 84, you represent them as x and 84 – x.

#26: To find the values that will make a fraction undefined, set the denominator equal to 0 and solve.

#27-28: If there is not equal sign, all you can do is *simplify* by getting a common denominator and adding the fractions. If there is an equal sign, then you can clear the fractions by multiplying through by the LCM and *solve* the equation.

Pages 525-526:

General notes for this section: For work problems, step 2 will look like this:

$$\frac{time\ doing\ \ job}{time\ to\ do\ \ job\ alone} + \frac{time\ doing\ \ job}{time\ to\ do\ \ job\ alone} = 1\ job$$

Each worker gets a separate fraction. In the denominator put how long it would take each to do the job alone. In the numerator, put how long each actually worked on the job. The sum of the fractions always equals 1 job.

Once you get it set up, write down your LCM and your restrictions on x (if any) and solve the equation.

Work to show:

#1-13: These are 5-step word problems.
#17-21: Show work needed.

#1: Your step 2 should look like this: $\underset{\frac{x}{3}}{\overset{Peter}{}} + \underset{\frac{x}{6}}{\overset{Jon}{}} = 1$

#7: For this problem, you unknown value, x, is how long it would take Bob working alone. Your step 2 should look like this: $\underset{\frac{45}{120}}{\overset{Phil}{}} + \underset{\frac{45}{x}}{\overset{Bob}{}} = 1$

Notice that all of the time amounts had to use the same unit of time, so they were changed to minutes.

#13: There are 4 people involved in this problem so you will have 4 fractions on the left side of the equation.

#17-18: Use backwards FOIL on these problems and then see if you can take them any further.

#19: Start with the difference of squares.

#20-21: These you must do in parts. Consider the first two terms together and the 2nd two terms together for each problem.

Page 537:

General notes for this section: To solve literal equations, follow these steps:

1. Clear the equation of fractions.
2. Perform any indicated operations and combine like terms.
3. Place all terms containing the variable on one side of the equation and all other terms on the other side.
4. If the variable is raised to a power, find the proper root or power to solve for it. Otherwise, factor the variable from all the terms.
5. Divide both sides by the coefficient of the variable.

Work to show:

#1-20: Write the problem and show work to solve.
#25, 27: These are 5-step word problems.

#1: After you solve for c^2, make sure that when you take the square root of both sides you remember the ±.

#13: For odd roots, such as cubed roots, you should not put a ± when you take the root of each side.

#18-20: Once you get off of the variable terms on one side, you will need to pull out the variable term and then divide through by what is in ( ).

#25: This is a 5-step problem.

#27: Remember how to translate “varies directly with.”