Name:_____ Date:_____ pd:_____

Section 7.4 – 7.5 Review
Advanced Algebra

Solve each equation.

1. $\frac{1}{6k^2} = \frac{1}{3k^2} - \frac{1}{k}$

2. $\frac{1}{x} = \frac{6}{5x} + 1$

3. $\frac{3}{x-1} = \frac{10}{2x-2} - 1$

4. $\frac{x}{x-4} = \frac{16}{x^2-4x} - \frac{2}{x}$

5. $\frac{4y}{3} - \frac{y}{4} = \frac{13}{2}$

6. $\frac{1}{m^2-m} + \frac{1}{m} = \frac{5}{m^2-m}$

7. $\frac{1}{b^2-7b+10}+\frac{1}{b-2}=\frac{2}{b^2-7b+10}$

8. $\frac{2m}{m-1}+\frac{m-5}{m^2-1}=1$

9. $\frac{5-p^2}{5-p}=-2$

10. $\frac{2a-3}{a-3}-2=\frac{12}{a+3}$

11. $\frac{4}{k^2-8k+12}=\frac{k}{k-2}+\frac{1}{k-6}$

12. $x-\frac{2}{x-3}=\frac{x-1}{3-x}$

13. When two resistors are wired in parallel, the total resistance (R_T) is determined using the formula $\frac{1}{R_T}=\frac{1}{R_1}+\frac{1}{R_2}$. Solve the formula for R_2.

14. When two resistors are wired in parallel, the total resistance (R_T) is determined using the formula $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$. Solve the formula for R_T.

WORD PROBLEMS:

15. Mary's car uses 10 gal of gasoline to travel 210 mi. She has 10 gal of gasoline in the car, and she wants to know how much more gasoline she will need to drive 640 mi. If we assume the car continues to use gasoline at the same rate, how many more gallons will she need?

16. It takes about me 25 minutes to make out a test for a mathematics class. How long will it take to make out tests for all five of my classes?

17. A company's quality control department found and average of 5 defective models for every 1000 models that were checked. If the company produced 60,000 models in a year, how many of them would be expected to be defective?

18. To determine the number of deer in a forest, a forest ranger tags 280 and releases them back into the forest. Later, 405 deer are caught, out of which 45 of them are tagged. Estimate how many deer are in the forest.

19. An employee working at an electronics store earned $3582 for working 3 months during the summer. What did the employee earn for the first two months?

20. Two painters, working together, can paint a house in 10 hours. Working alone, the first painter can paint the house in 15 hours. How long would it take for the second painter to paint the house working alone?

21. Machine #1 can do a job in 8 hrs. Machine #2 can do the same job in 6 hrs. How long will it take both machines to do the job working together?

22. A small water pipe takes three times longer to fill a tank than does a large water pipe. With both pipes open, it takes 4 hrs to fill the tank. Find the time it would take the small pipe, working alone, to fill the tank.

23. A small plane can fly 140 mph in calm air. Traveling with the wind, the plane can fly 425 mi in the same amount of time in which it can fly 275 mi against the wind. Find the rate of the wind.

24. The speed of a boat in still water is 28 mph. The boat traveled 70 mi down a river in the same amount of time in which it traveled 42 mi up the river. Find the rate of the rivers current.

25. A canoeist can paddle 8 mph in still water. Traveling with the current, the canoe traveled 30 mi in the same amount of time in which it traveled 18 mi against the current. Find the rate of the current.

26. Lauren's car uses 15 gal of gasoline to drive 390 miles. She has 6 gal of gasoline in the car and she wants to know how much more gasoline she will need to drive 800 mi. If we assume that the car continues to use gasoline at the same rate, how many more gallons will she need?

27. Ernesto and Larry are loading a truck together. If it takes Larry 6 hours to load the truck alone, and it takes Ernesto 4 hours to load the truck alone, how long does it take for them to load the truck together?

28. A boat travels 45 miles downstream in the same time that it takes to travel 30 miles upstream. If the speed of the boat in still water is 12 miles per hour, find the rate of the current.