## Section 7.4 – 7.5 Review Advanced Algebra

Solve each equation.

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

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

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

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

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

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

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

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

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

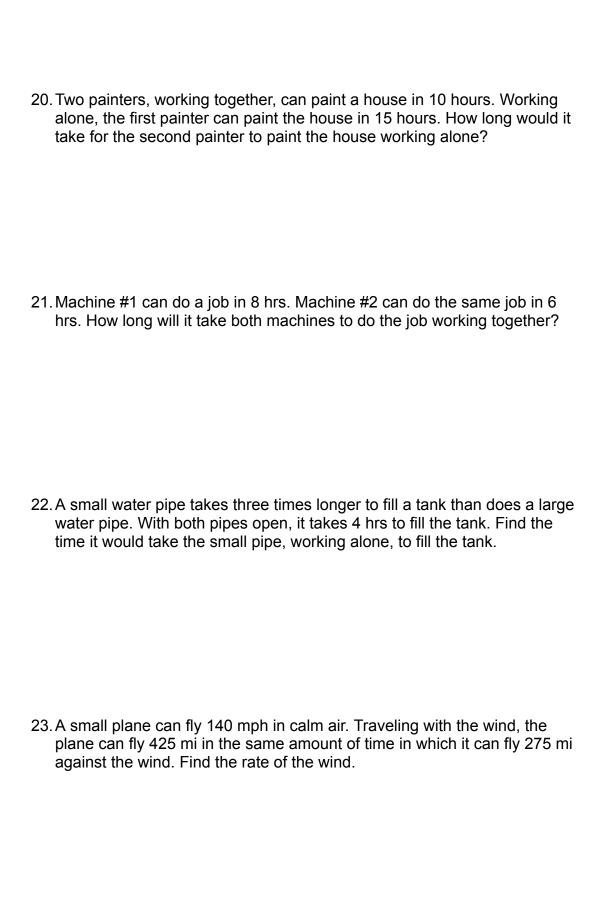
 $\frac{1}{R_{\rm T}} = \frac{1}{R_{\rm I}} + \frac{1}{R_{\rm 2}}$  determined using the formula for  $R_{\rm 2}$ . Solve the formula for  $R_{\rm 2}$ .

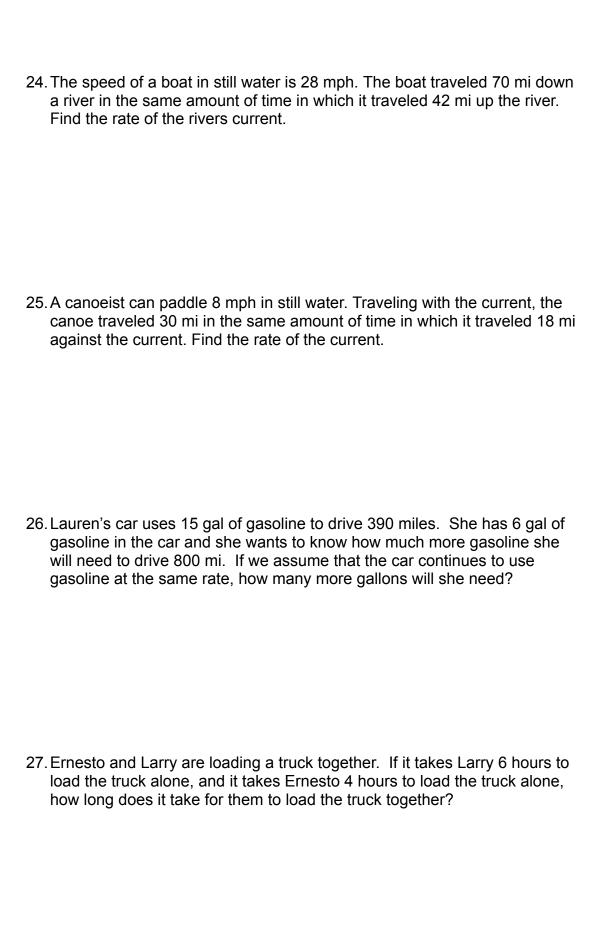
14. When two resistors are wired in parallel, the total resistance ( $R_T$ ) is

 $\frac{1}{R_{\rm T}} = \frac{1}{R_{\rm I}} + \frac{1}{R_{\rm 2}}$  determined using the formula for  $R_{\rm T}$ . Solve the formula for  $R_{\rm T}$ .

## **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?





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.