5.3.D6 ~ More Applications w/Rational Functions   Past due on: _____ Period _____

Show all work on a separate sheet of paper.

Problems 1 – 8, set up and solve a rational equation that represents each situation.

1. The current in the Lazy River moves at a rate of 4 mph. Ken's dinghy motors 6 miles upstream in the same time that it takes to motor 12 miles downstream. What is the speed of the dinghy in still water?

	Dist.	Rate	Time
Upstream			
Downstream			

2. Sandy's tugboat moves at a rate of 10 mph in still water. It travels 24 miles upstream and 24 miles downstream in a total time of 5 hours. What is the speed of the current?

	Dist.	Rate	Time
Upstream			
Downstream			

3. The current in a river is 6 miles per hour. In her motorboat Marissa can travel 12 miles upstream or 16 miles downstream in the same amount of time. What is the speed of her motorboat in still water?

	Dist.	Rate	Time
Upstream			
Downstream			

4. The speed of the current in Catamount Creek is 3 mph. Ahmad's kayak can travel 4 miles upstream in the same time it takes to travel 10 miles downstream. What is the speed of Ahmad's kayak in still water?

	Dist.	Rate	Time
Upstream			
Downstream			

5. A barge moves at a rate of 7 km/h in still water. It travels 45 km upriver and 45 km downriver in a total time of 14 hours. What is the speed of the current?

	Dist.	Rate	Time
Upriver			
Downriver			

6. A boat travels for 3 hours with a current of 3 mph and then returns going against the current in 4 hours. What is the boat's speed in calm water (a still current)?

	DIST.	RATE	TIME
WITH THE CURRENT			
AGAINST CURRENT			

7. A tank can be filled in 18 hours by pipe A alone and in 22 hours by pipe B alone. How long will it take to fill the tank if both pipes are working?

8. Hannah can clear a lot in 5.5 hours. Damon can do the same job in 7.5 hours. How long will it take them to clear the lot working together?

Solve each rational equation. Remember to check for extraneous solutions.

9. $\dfrac{2}{3x} + \dfrac{5}{6x} = \dfrac{1}{6}$

10. $\dfrac{1}{3x-3} + \dfrac{1}{3x^2-3x} = \dfrac{1}{x^2-x}$

11. $3 + \dfrac{1}{x} = \dfrac{x^2+x-12}{6x}$

12. $\dfrac{x-2}{x} + 1 = \dfrac{x^2+5x-6}{x^2-2x}$

Chapter 5: Polynomial, Power, & Rational Functions