Secondary Math 3 Name_____

5.3 Solving Rational Equations

Date_____ Period____

1) One pump can fill a tank with oil in 4 hours. A second pump can fill lthe same tank in 3 hours. If both pumps are used at the same time, how long will they take to fill the tank?

2) You ride your bike to a store, 5 miles away, to pick up things for dinner. When there is no wind, you ride at 9 mi/hr. Today your trip to the store and back took you 1 hour. What was the speed of the wind today?

3) You ride your bike to the movies, 12 miles away. When there is no wind, you ride at 10 mi/hr. Today your trip to the store and back took you 1.5 hours. What was the speed of the wind today?

4) A flight across the U.S. takes longer east to west than it does west to east. Assume that winds are constant in the eastward direction. When flying westward, the headwind decreases the airplane's speed. When flying eastward, the tailwind increases its speed. The time for a round trip flight from San Francisco to Chicago (1850 miles) is 8 1/8 hours. If the airplane cruises at 480 mi/hr, what is the speed of the wind?

Solve each equation. Remember to check for extraneous solutions.

5) $\frac{p-4}{5p} = \frac{1}{5p} - \frac{p-3}{p}$

6) $\frac{5}{k^2} = \frac{1}{k} - \frac{1}{k^2}$

7) $\frac{2a-12}{a} = \frac{2a+6}{a} + \frac{2a-2}{a}$

8) $\frac{7}{r+5} = \frac{1}{r+5} + \frac{4r-32}{r^2-25}$

9) $\frac{5r+2}{r^2-2r} = \frac{1}{r} - \frac{r+6}{r^2-2r}$

10) $3 - \frac{1}{x} = \frac{6}{x}$

11) $\frac{1}{2v-7} + v + 8 = \frac{v^2+4v-5}{2v-7}$

12) $\frac{k-1}{k^2+6k} + \frac{1}{k^2+6k} = \frac{k-6}{k+6}$

13) $\frac{2}{x+4} - \frac{x^2 - x - 2}{x^2 + 9x + 20} = \frac{3x + 6}{x + 4}$

14) $\frac{a-7}{a-3} = \frac{7}{a^2 - 2a - 3} + 1$

15) $\frac{3m - 18}{m^2 + 2m} + \frac{m + 1}{m + 2} = 1$

16) $\frac{m}{m+8} - \frac{1}{m^2 + 8m} = \frac{m^2 + 7m + 10}{m^2 + 8m}$

17) Why do you have extraneous solutions when solving rational equations?