Show all set up and work for full points.

For problems 1 & 2, simplify each expression.

1. $\dfrac{\frac{2}{x}+\frac{3}{y}}{\frac{-5}{x}+\frac{7}{y}}$

2. $\dfrac{x^2+3}{x^2-2x} - \dfrac{x-4}{x}$

For problems 3-5, solve each equation.

3. $\dfrac{2y}{5} + \dfrac{2}{6} = \dfrac{y}{2} - \dfrac{1}{6}$

4. $\dfrac{2}{x+3} - \dfrac{3}{4-x} = \dfrac{2x-2}{x^2-x-12}$

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

For problems 6 & 7, solve each equation for the given variable.

6. $\dfrac{1}{m} + \dfrac{1}{n} = \dfrac{1}{T}$ *for T*

7. $\dfrac{1}{d} = \dfrac{d}{p+q}$ *for d*

For problems 8 & 9, complete each application problem by using a table to set up and solve a rational equation. Answer the question using a complete sentence.

8. Duncan and Peter are cleaning house. If it takes Duncan 3 hours to clean the house, and it takes Peter 4 hours to clean the house, how long will it take them to clean the house together?

9. A riverboat travels at an average of 14km per hour in still water. The riverboat travels 110 km east up the Ohio River and 110 km west down the same river in a total of 17.5 hours. To the nearest tenth of a kilometer per hour, what was the speed of the current of the river?