

Name \_\_\_\_\_ Period \_\_\_\_\_ Score \_\_\_\_\_

**Precalculus Worksheet 3**  
**Solving Rational Equations and Inequalities**

Solve each equation.

1.  $\frac{2}{5} + \frac{7}{8} = \frac{y}{20}$

2.  $\frac{1}{3} - \frac{5}{6} = \frac{1}{x}$

3.  $\frac{x-3}{x+2} = \frac{1}{5}$

4.  $\frac{3}{y+1} = \frac{2}{y-3}$

5.  $\frac{1}{2x} - \frac{2}{5x} = \frac{1}{10x}$

6.  $\frac{a}{2a-6} - \frac{3}{a^2-6a+9} = \frac{a-2}{3a-9}$

7.  $\frac{2}{x+2} + \frac{3}{x} = \frac{-x}{x+2}$

8.  $\frac{2}{x+4} + \frac{2x-1}{x^2+2x-8} = \frac{1}{x-2}$

9. A biologist introduces 100 insects into a culture. The population  $P$  of the culture can be approximated by the following model where  $t$  is the time in hours.

$$P = \frac{500(1+3t)}{5+t}$$

Find the time required for the population to increase to 1000 insects.