

Pre-Calculus  
Rational Functions Practice

Name \_\_\_\_\_

Solve for the indicated variable:

1. Solve for  $r$ :  $SA = 4\pi r^2$
2. Solve for  $b_2$ :  $A = \frac{1}{2}h(b_1 + b_2)$
3. Solve for  $G$ :  $F = G\left(\frac{m_1 m_2}{r^2}\right)$

Simplify:

4.  $\frac{x^2 - 10x + 9}{x^2 - 1} \cdot \frac{x + 4}{x^2 - 5x - 36}$
5.  $\frac{x^2 - y^2}{4x + 4y} \cdot \frac{x + y}{x - y}$
6.  $\frac{x^2 - 16}{x^2 - 10x + 25} \div \frac{3x - 12}{x^2 + 3x - 10}$
7.  $\frac{8x^3 + 27}{64x^3 - 1} \div \frac{4x^2 - 9}{16x^2 + 4x + 1}$

8.  $\frac{x^2 - 9}{x^2 + 5x + 4} \cdot \frac{x + 4}{x^2 - 1}$
9.  $\frac{\frac{x}{1-x} + \frac{1+x}{x}}{\frac{1-x}{x} + \frac{x}{x+1}}$

Solve:

10.  $\frac{2}{5} + \frac{7}{8} = \frac{x}{20}$
11.  $\frac{5}{8} - \frac{2}{5} = \frac{1}{x}$
12.  $\frac{x}{3} + \frac{x}{4} = 12$
13.  $\frac{x+1}{3} + \frac{x-1}{2} = 1$
14.  $\frac{4}{3x} + \frac{3}{x} = \frac{10}{3}$
15.  $\frac{x-3}{x+2} = \frac{1}{5}$
16.  $\frac{x-1}{x-3} = \frac{2}{x-3}$
17.  $\frac{3}{x+1} = \frac{2}{x-3}$
18.  $\frac{2}{x} - \frac{3}{x} + \frac{4}{x} = 5$
19.  $\frac{1}{2} + \frac{2}{x} = \frac{1}{3} + \frac{3}{x}$
20.  $\frac{60}{x} - \frac{60}{x-5} = \frac{2}{x}$

21.  $\frac{7}{5x-2} = \frac{5}{4x}$
22.  $\frac{1}{2x} - \frac{2}{5x} = \frac{1}{10x} - 3$
23.  $\frac{x}{x-2} + \frac{x}{x^2-4} = \frac{x+3}{x+2}$
24.  $\frac{3}{x-2} + \frac{2x}{4-x^2} = \frac{5}{x+2}$
25.  $\frac{x}{2x-6} - \frac{3}{x^2-6x+9} = \frac{x-2}{3x-9}$
26.  $\frac{2}{x+4} + \frac{2x-1}{x^2+2x-8} = \frac{1}{x-2}$
27.  $\frac{2x+3}{x-1} = \frac{10}{x^2-1} + \frac{2x-3}{x+1}$
28.  $\frac{x^3+8}{x+2} = x^2 - 2x + 4$
29.  $\frac{(x-3)^2}{x-3} = x-3$
30.  $\frac{x+3}{x+2} - \frac{x+4}{x+3} = \frac{x+5}{x+4} - \frac{x+6}{x+5}$