

Chap. 6

You must show work in order to receive credit.**1.** List all numbers for which each expression is undefined.

a) $\frac{x-2}{x^2-9}$

b) $\frac{3x+1}{x^2+1}$

c) $\frac{x^2-2x-8}{x^2+4x-21}$

2. Simplify. $\frac{6x^2+7x-5}{3x^2-13x-30}$

3. Multiply or divide, and simplify if possible.

a) $\frac{y^2-49}{12y} \cdot \frac{8y}{7-y}$

b) $\frac{2m^2-8m-42}{m-3} \div \frac{2m^2-14m}{m^2-3m}$

b) $\frac{36x^2-1}{5x^2+4x} \div \frac{6x^2-17x-3}{5x^2-x-4}$

d) $(x^2+8x+16) \div \frac{(x-4)^2}{x^2-16}$

4. Find the LCM: $y^2-25, y^2+2y-15, y^2+8y+15$ **5.** Add or subtract, and simplify if possible.

a) $\frac{x+1}{x+2} - \frac{x^2+1}{x^2-x-6}$

b) $\frac{8}{t-3} + \frac{5}{t}$

c) $\frac{y+1}{y^2-4} - \frac{1}{4-y^2}$

d) $\frac{x-6}{x-2} - \frac{x-5}{2-x}$

e) $\frac{5}{x^2-16} - \frac{x+3}{x^2+3x-4}$

f) $\frac{2}{x+2} + \frac{5}{x^2-4} - \frac{3}{x^2+4x+4}$

7. Simplify: a) $\frac{4 - \frac{1}{x^2}}{2 - \frac{1}{x}}$

b) $\frac{\frac{4}{ab^3} - \frac{2}{a^2b^2}}{\frac{3}{ab^4} + \frac{5}{a^3b}}$

8. Solve

a) $\frac{12}{y} - \frac{12}{y-1} = -1$

b) $\frac{5}{x^2-x-2} - \frac{1}{x+1} = \frac{3}{x-2}$

9. Rosita can wax her car in 2 hours. When she works together with Helga, they can wax the car in 45 min. How long would it take Helga, working by herself to wax the car?**10.** Maria drives 21 km per hour faster than B.J. In the same time that B.J. drives 369 km, Maria drives 463.5 km. Find the speed of each car.**11.** A naturalist at a state park studies the number of raccoons in a section of the park. He catches, tags and releases 30 raccoons. A month later, 16 raccoons are caught: 2 of them are tagged. Estimate the raccoon population in that section of the park.**12.** Find the missing side if the two triangles are similar.