

Read the directions carefully. Circle your final answer.

*Tips: Factor first! Factors can cancel from the numerator and denominator when everything is multiplied. Variables which must be excluded from the domain are those which make any factor in a denominator zero (at any step in the solution of a problem).*

Simplify and state the values which are not in the domain for each variable.

1.  $\frac{-36x^2 - 48x}{18x^3 + 24x^2}$

2.  $\frac{x^2 + x - 6}{3x^2 - 10x + 8}$

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

Multiply or divide and simplify. State the values which are not in the domain for each variable.

$$4. \frac{x^2 + x - 6}{12 + x - x^2} \cdot \frac{x^2 + x - 20}{x^2 - 4x + 4}$$

$$5. \frac{14 + 17x - 6x^2}{3x^2 + 14x + 8} \div \frac{4x^2 - 49}{2x^2 + 15x + 28}$$

Add or subtract and simplify. State the values which are not in the domain for each variable.

$$6. \frac{2x - 3}{x + 5} - \frac{x^2 - 4x - 19}{x^2 + 8x + 15}$$

Simplify and state the values which are not in the domain for each variable.

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

Solve for x. Be sure to check your solutions to make sure they make sense!

$$8. 5 + \frac{8}{x-2} = \frac{4x}{x-2}$$

$$9. -\frac{5}{x+7} + 1 = \frac{4}{x+7}$$

Solve for b.

$$10. \frac{1}{f} = \frac{1}{a} + \frac{1}{b}$$