

Mth 144 Precalc

Name (Optional): _____

Instructions: Solve each problem completely. Show all your work. No calculators are allowed.

1. Skill: Factoring Techniques

Factor the following expression completely: $16x^2 - 25$

2. Skill: Domain of Rational Functions

Determine the domain of the function: $f(x) = \frac{x+3}{x^2-9}$

3. Skill: Simplifying Rational Expressions

Simplify the following rational expression: $\frac{x^2-4}{x^2+2x-8}$

4. **Skill: Solving Rational Equations**

Solve the equation: $\frac{1}{x-2} + \frac{1}{x+2} = \frac{2}{x^2-4}$

5. **Skill: Evaluating Radical Expressions**

Simplify: $\sqrt{72} + \sqrt{50}$

6. **Skill: Domain of Radical Functions**

Find the domain of: $f(x) = \sqrt{x^2 - 16}$

7. **Skill: Simplifying Radical Expressions**

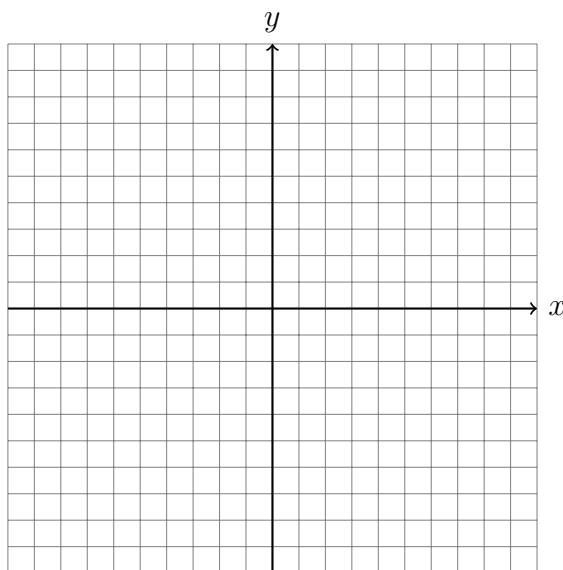
Simplify: $\frac{\sqrt{72}}{\sqrt{18}}$

question **Skill: Solving Radical Equations**

Solve: $\sqrt{x+7} = x-1$

8. **Skill: Graphing Radical Functions**

Sketch the graph of $f(x) = \sqrt{x+2}$. Determine its domain and range.



9. **Skill: Solving Quadratic Equations**

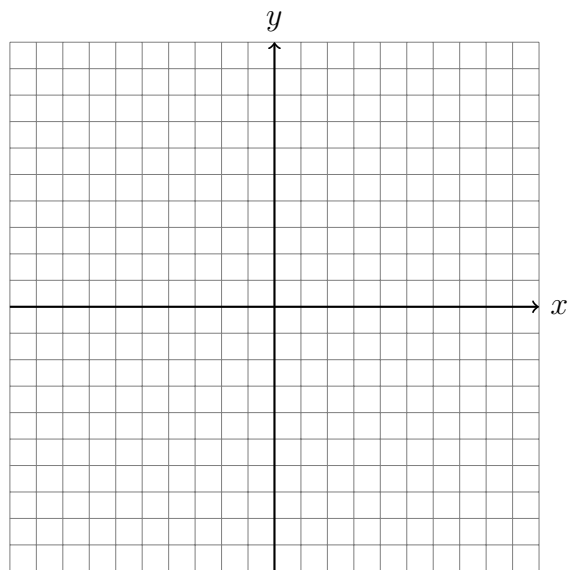
Solve by factoring: $x^2 + 5x + 6 = 0$

10. **Skill: Quadratic Application Problem**

The height of an object thrown upward is given by $h(t) = -16t^2 + 64t$. Find the maximum height and the time it takes to reach the maximum height.

11. **Skill: Graphing Quadratic Functions**

Sketch the graph of $f(x) = -(x - 2)^2 + 3$. Identify its vertex and axis of symmetry.



12. **Skill: Solving Inequalities**

Solve and graph the solution: $x^2 - 4 < 0$

