

Math 56/60 Exam #4
Chapters 8.1-8.3, 8.5, 9.1-9.2, and 9.5

Answer Key

Instructions: Show all work. Circle each answer.

1. Find the domain of $f(x) = \frac{x+2}{4x^2-25}$. $x \neq \pm \frac{5}{2}$

2. Simplify the right side of the equation: $f(x) = \frac{2x^2 - 7x - 4}{2x^2 + 9x + 4}$.

$$f(x) = \frac{x-4}{x+4}$$

3. Simplify the right side of the equation: $f(x) = \frac{x-5}{5-x} = -1$

4. Solve $\frac{3}{x+1} + \frac{2}{5} = 1$ $x = 4$

5. Perform the indicated operations and simplify your result.

a. $\frac{-x^2 + 7x - 10}{2x^2 + 5x - 12} \div \frac{-x^2 + 4}{8x^2 - 18}$

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

b. $\frac{3x^2 + 5x}{x^2 + 10x + 21} - \frac{2x^2 + 7x + 15}{x^2 + 10x + 21}$

$$\frac{x-5}{x+7}$$

c. $\frac{x-1}{x+2} + \frac{x+2}{x-1}$

$$\frac{2x^2 + 2x + 5}{(x+2)(x-1)}$$

6. Perform the indicated operations and simplify your result.

$$\frac{x-1}{4x^2+20x+25} - \frac{x+4}{6x^2+17x+5}$$

$$\frac{x^2-15x-21}{(2x+5)^2(3x+1)}$$

7. Solve $\frac{x}{x+2} - \frac{7}{5-x} = \frac{14}{x^2-3x-10}$

$$x = 0$$

8. Write $(2x+9)^{3/7}$ in radical form. $\sqrt[7]{(2x+9)^3}$

9. Let $f(x) = \frac{5}{x-1} + \frac{3}{x+1}$. Find the value of x when $f(x) = -1$ (or $y = -1$).

$$x = -4 \pm \sqrt{15}$$

10. Simplify each of the following.

a. $\sqrt{80x^3y^6} = 4xy^3\sqrt{5x}$

b. $\sqrt[4]{81x^{21}} = 3x^5\sqrt[4]{x}$

c. $\sqrt[6]{(2x+9)^{31}} = (2x+9)^5\sqrt[6]{2x+9}$

11. Solve $3\sqrt{7x} - 24 = -9\sqrt{7x}$

$$x = 4/7$$

12. Solve $\sqrt{12x+13} + 2 = 3x$

$$x = 3$$

13. Solve $\sqrt{x-3} + \sqrt{x+5} = 4$

$$x = 4$$