

Name: _____

M\$5 Exam 2 PRACTICE

1. From the sum of $2x + 8$ and $3x - 2$, subtract $5x + 1$ 1. _____

2. Factor completely: $9p^3 - 36px^2$ 2. _____

3. Reduce the rational expression to lowest terms: $\frac{x^3y - x^2y^2}{xy^3 - x^2y^2}$ 3. _____

4. Express the quotient in simplest form: 4. _____
$$\frac{4x^2 - 100}{x^2 + x - 6} \div \frac{20 - 4x}{2x^2 - 9x + 10}$$

5. Express the product in simplest form: 5. _____
$$\frac{x^2 - 3x}{2x^2 + x - 6} \cdot \frac{x^2 - 4}{x^2 - 5x + 6}$$

6. Simplify: $\frac{d^2 + 8}{d^3 - d} - \frac{8 - d}{d^3 - d}$ 6. _____

7. Simplify: $\frac{x}{x^2 + 3x - 4} - \frac{x + 1}{2x^2 - 2}$ 7. _____

8. Express in simplest form: $\frac{\frac{x}{4} - \frac{1}{x}}{1 - \frac{2}{x}}$ 8. _____

9. Express in simplest form: $\frac{\frac{3}{x-2} - \frac{3}{x+2}}{\frac{12}{x^2-4}}$ 9. _____

10. Express in simplest form: $\frac{\frac{b}{b-3} + \frac{4}{b}}{1 - \frac{1}{3-b}}$ 10. _____

11. Solve and check: $\frac{x-1}{x-5} - \frac{1}{x} = \frac{20}{x^2-5x}$

11. _____

12. The solution set of $|x-3| > 5$ is

12. _____

(1) $\{x|x < 8 \text{ and } x < -2\}$

(3) $\{x|x < 8 \text{ and } x > -2\}$

(2) $\{x|x < 8 \text{ or } x < -2\}$

(4) $\{x|x > 8 \text{ or } x < -2\}$

13. The solution set for the inequality $x^2 + 4x - 5 \leq 0$ is

13. _____

(1) $-5 \leq x \leq 1$

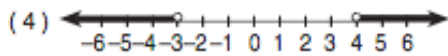
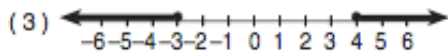
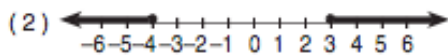
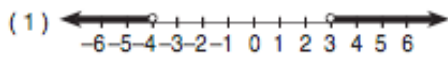
(3) $x \leq -5 \text{ or } x \geq 1$

(2) $x \leq -1 \text{ or } x \geq 5$

(4) $-1 \leq x \leq 5$

14. Which graph represents the solution set for $x^2 + x > 12$

14. _____



15. Graph and state the solution set of the quadratic inequality:

15. _____

$4x^2 + 12x + 9 \leq 0$

16. Solve and check: $|6 - 3x| = 7x$

16. _____

Challenge

The following equation has four distinct elements in its solution set.

$$|x^2 - 10x| = 24$$

a State the solution set of the equation.

b A student noticed that a *quadratic* absolute value equation has four solutions. Can you find an absolute value equation that has only *three distinct* solutions? If so, state the equation and its solution set. If not, explain why not.

c Graph and state the solution set of the inequality: $|x^2 - 10x| > 24$