

MATH 111 PRETEST 2

This test is designed to give an example of what types of questions may be on the test. No Calculators. Show all work for full credit.

1. Solve by factoring.

$$2x^2 + 15x = 8$$

2. Solve by extracting square roots.

$$2x^2 - 3 = 125$$

3. Solve by completing the square.

$$x^2 - 2x - 14 = 0$$

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4. Solve by completing the square.

$$3x^2 - 18x - 6 = 0$$

5. Solve using the Quadratic Formula. Simplify your answer.

$$x^2 = 2x + 4$$

6. Solve.

$$\frac{12}{x^2 - 2x - 8} - \frac{2}{x - 4} = \frac{7}{x + 2}$$

7. Solve.

$$\frac{2}{x-3} - \frac{8}{x^2-9} = \frac{4}{x+3}$$

8. Solve.

$$\frac{24}{x^2-4x-12} + \frac{3x-1}{x-6} = \frac{2x+3}{x+2}$$

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9. Solve.

$$x^2 - 4 = 12$$

10. Solve.

$$x^3 + 2x^2 = x + 2$$

11. Solve.

$$2x^{2/3} + x^{1/3} - 15 = 0$$

12. Solve. Check your solutions.

$$\sqrt{2x(x+7)} - 4 = x$$

13. Solve. Check your solutions.

$$\sqrt{2x+5} - \sqrt{3x+6} = -1$$

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14. Solve. Check your solutions.

$$|x^2 + 7x| = x + 16$$

15. Solve. Give your answer in interval notation.

$$\left| \frac{2x + 3}{2} \right| + 7 \geq 12$$

16. Find the domain. Give your answer in interval notation.

$$f(x) = \sqrt{x^2 - 4x}$$

17. Solve. Give your answer in interval notation.

$$\frac{1+x}{1-x} \geq 1$$

18. Solve. Give your answer in interval notation.

$$x < \frac{2}{x-1}$$

19. Determine whether the lines represented by $4x + 8y = 10$ and $2x = 12 - 4y$ are parallel, perpendicular, or neither.

20. Find the *slope-intercept* form of the equation of the line passing through the points $(3, 7)$ and $(-5, 3)$.

21. Evaluate the difference quotient.

Given: $f(x) = 3x^2 - x + 2$

Evaluate: $\frac{f(x+h) - f(x)}{h}$

22. Find the domain. Give your answer in interval notation.

$$f(x) = \sqrt{x+5} + \sqrt{x^2-4}$$

23. Let $f(x) = x^2 - 1$ and $g(x) = 3x - 2$. Evaluate each of the following.

a. $(f - g)(2t)$

b. $(f + g)(2 + x)$

24. Let $f(x) = x^2 - 1$ and $g(x) = \sqrt{x + 1}$. Find $(f \circ g)(x)$ and its domain.

25. Let $f(x) = \frac{x+3}{x-2}$ and $g(x) = \frac{1}{x}$. Find $(f \circ g)(x)$ and its domain.

26. Write the equations of the graphs on the next pages.
(Not available online.)