Review for Exam 3
MA 102

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1) Simplify $\sqrt{64z^7x^10}$.

2) Find the root, if it is a real number, $\sqrt{-9}$.

3) Add and simplify $\dfrac{3x}{4-x} + \dfrac{6x}{(4-x)(2-x)}$

4) Solve the equation $\dfrac{1}{a-2} + \dfrac{2}{a+2} = -\dfrac{2}{a^2-4}$.

5) Simplify the complex fraction $\dfrac{\frac{1}{x} - 3}{\frac{1}{x^2} - 9}$.

6) Multiply and simplify $\dfrac{64}{x^2-3x} \cdot \dfrac{x^2-9}{12}$.

7) Solve for i: $\dfrac{i-3x}{p} = Y$.

8) Write with positive exponents, assuming the variable is a positive number: $\dfrac{d^{\frac{1}{8}}d^{\frac{3}{8}}}{-d^{-\frac{1}{2}}}$.

9) Divide $\dfrac{3x^2-2x-1}{2x^2-x-1} \div \dfrac{4x^2+6x+2}{3x^2+4x+1}$.

10) Calculate $\sqrt[3]{-625}$.

11) Solve the equation $\dfrac{4-x}{x+3} = \dfrac{7}{x+3}$.

12) Rewrite with positive exponents: $\left(e^{\frac{1}{4}}e^{\frac{-3}{4}}\right)^{-2}$

13) Find $\sqrt[3]{x^9}$.

14) Find $\sqrt[5]{-1024}$

15) Calculate $(-343)^{\frac{2}{3}}$.

16) Solve $-2x^3 = -x(4x + 6)$.

17) A stream flows at 5mph. A boat takes the same amount of time to travel downstream 15 miles as it does to travel upstream 10 miles. How fast would this boat travel in calm water?

18) Simplify $\frac{(x^2)^{\frac{1}{4}}}{x^{-\frac{1}{2}}}$.

19) Four postal workers can sort a stack of mail in 10, 20, 30, and 40 minutes repsectively. How long would it take them all to sort two stacks of mail, working together?

20) Simplify $\sqrt[5]{x^{62}}$.