

Math 095 – Review for Exam 2

Group 1

1. Find the solution set for the equation.

$$\frac{|2x - 1| + 8}{5} = 3$$

2. Find the solution set for the inequality below. Then (a) graph the solution on a number line, and (b) give the solution in interval notation.

$$|5 - 2x| > 9$$

3. Find the solution set for the inequality below. Then (a) graph the solution on a number line, and (b) give the solution in interval notation.

$$|1 - 2x| - 5 \leq 4$$

Group 2

1. Evaluate the following radical expressions.

a. $\sqrt{\frac{49}{64}}$

b. $\sqrt[3]{-\frac{125}{512}}$

c. $\sqrt{100x^2 - 120x + 36}$ [factor first]

2. Break down the square roots below.

a. $\sqrt{567}$

b. $5\sqrt{539}$

c. $3\sqrt{252x^5y^4}$

Group 3

1. Write the radical expressions below in exponential form. Simplify if possible.

a. $\sqrt[7]{x^8}$

b. $\sqrt[8]{a^2b^4}$

c. $(\sqrt[6]{h^3})^4$

2. Write the following exponential expressions in radical form after simplifying.

a. $\frac{x^{1/3}}{x^{5/6}}$

b. $(x^5y^2)^{3/10}$

c. $\left(\frac{x^{-1/3}}{x^{5/6}}\right)^{-1/2}$

Group 4

1. Add or subtract the following root.

$$6a\sqrt{320ab^3} - 2b\sqrt{405a^3b}$$

2. Multiply the roots and simplify.

a. $5\sqrt{6x}(2\sqrt{14x^2} - 3\sqrt{15x^4})$

b. $(2\sqrt{3} - \sqrt{2})(\sqrt{3} + 5\sqrt{2})$

Group 5

1. Divide by rationalizing the denominator.

$$\frac{2\sqrt{54}}{5\sqrt{3}}$$

2. Add or subtract by simplifying first.

$$3\sqrt{405} - \frac{7}{\sqrt{20}}$$

3. Divide by rationalizing the denominator.

$$\frac{3 + \sqrt{2}}{4 + \sqrt{5}}$$

Group 6

1. Solve the equation below.

$$3\sqrt{2x - 10} + 1 = 25$$

2. Solve the equation below. [remember to check!]

$$\sqrt{2x + 13} = x + 5$$

Group 7

1. Add/Subtract after converting to $a + bi$ form.

$$(9 - 2\sqrt{-63}) - (4 - 5\sqrt{-700})$$

2. Multiply after converting to $a + bi$ form.

$$(5 - 2\sqrt{-49})(3 + \sqrt{-81})$$

3. Divide by rationalizing the denominator.

$$\frac{3 + i}{4 - 2i}$$

Group 8

1. Solve using the completing the square method.

$$\frac{1}{3}x^2 + 4x + 12 = 9$$

2. Solve using the quadratic formula.

$$5(5x^2 - 4x) = -1$$