EXAM 1 REVIEW QUESTIONS

THE REAL NUMBER SYSTEM

You were asked to write the following in interval notation:

$$\{\, x \mid -11 < x \leq 10 \,\}$$

Write the first four terms of the set described by

$$\left\{\, \frac{x}{x+6} \mid x \text{ is a natural number} \right\}$$

Order of Operations

You were asked to evaluate the following expression, using the correct order of operations:

$$-5 - 3 \cdot -5 \div 2 + (-4)^3$$

You were asked to evaluate the following expression for the given values of the variables:

$$\left|\, x + 5y \,\right| + (\, 5z + 1\,) \text{ for } x = -1,\, y = 5 \text{ and } z = -2$$

You were asked to evaluate the following expression for the given values of the variables:

$$-5\sqrt{x+1} + 5y^2 \text{ for } x = 35 \text{ and } y = -1$$

Properties of Exponents

You were asked to simplify the following expression, writing your answer with only positive exponents.

$$\frac{1}{-3y^{-6}}$$

You were asked to use the properties of exponents to simplify the following expression, writing your answer with only positive exponents.

$$((4x^{-4}z^2)^4)^{-1}$$

You were asked to simplify the following expression, writing your answer with only positive exponents.

$$\frac{s^{11} z^{-3}}{s^4 z^6}$$

Properties of Radicals

You were asked to simplify the following radical expression, assuming all variables are positive.

$$\sqrt{25 y^2}$$

You were asked to simplify the following radical expression by rationalizing the denominator.

$$\frac{\sqrt{y}}{\sqrt{y} - \sqrt{6}}$$

Rational Number Exponents

You were asked to simplify the following expression.

$$256^{\frac{-3}{4}}$$

You were asked to simplify the following radical expression.

$$\sqrt[4]{3} \ \sqrt[16]{3}$$

You were asked to simplify the following expression.

$$(5y^2 + 4)^{\frac{2}{3}} (5y^2 + 4)^{\frac{-1}{3}}$$

Properties of Radicals

You were asked to simplify the following radical expression.

$$\sqrt[3]{x^{10}} \ \sqrt[9]{x^6}$$

Imaginary Unit i

You were asked to simplify the following square root expression.

$$\left(\sqrt{-50} \right)\left(\sqrt{-2} \right)$$

You were asked to simplify the following complex expression by adding, subtracting, or multiplying, as indicated.

$$(4 - 8i)(4 + 8i)$$

You were asked to simplify the following expression.

$$\frac{10}{1 + 3i}$$

Absolute Value Equations

You were asked to solve the following absolute value equation. If needed, write your answer as a fraction reduced to lowest terms.

$$| 4x - 4 | = | 3x + 2 |$$

Linear Equations

You were asked to solve the following linear equation.

$$0.9z + 3.3 = 2z$$

Absolute Value Equations

You were asked to solve the following absolute value equation. If needed, write your answer as a fraction reduced to lowest terms.

$$| 5x + 4 | + 3 = 1$$

Word Problems with linear equation

You were asked to solve the following application problem.

Two trucks leave a warehouse at the same time. One travels due north at an average speed of 62 miles per hour, and the other travels due south at an average speed of 64 miles per hour. After how many hours will the two trucks be 819 miles apart?

Compound Inequalities

You were asked to solve the following compound inequality and describe the solution set using interval notation.

$$-18 < 2z - 6 \le 14$$

You were asked to solve the following linear inequality and describe the solution set using interval notation.

$$7n - 35 < -20 + 4n$$

You were asked to solve the following compound inequality and describe the solution set using interval notation.

$$\frac{12}{8} < \frac{z+9}{4} < \frac{26}{8}$$

Quadratic Equations

You were asked to solve the following quadratic equation by using the quadratic formula and, if needed, to submit your answer as a fraction reduced to lowest terms.

$$5z^2 + 6z - 4 = 4z$$

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$$5z^2 + 6z - 4 = 4z$$

You were asked to solve the following quadratic equation by factoring and, if needed, to submit your answer as a fraction reduced to lowest terms.

$$y^2 + 10y + 16 = 0$$

You were asked to solve the following quadratic-like equation and, if needed, to submit your answer as a fraction reduced to lowest terms.

$$7y^{\frac{12}{5}} - 13y^{\frac{7}{5}} + 6y^{\frac{2}{5}} = 0$$

You were asked to solve the following quadratic-like equation and, if needed, to submit your answer as a fraction reduced to lowest terms.

$$7z^{\frac{11}{5}} - 37z^{\frac{6}{5}} + 10z^{\frac{1}{5}} = 0$$

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