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$$-1^2 =$$

- ☐ 1
- ☐ -2
- ☐ -1
- ☐ None of the above

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$$\frac{5}{y+4} - \frac{8}{y-4} = \frac{2}{y^2-16}$$

- ☐  $\{-18\}$
- ☐  $\{54\}$
- ☐  $\{\sqrt{54}\}$
- ☐  $\{18\}$

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$$7[7x - 7 + 4(x + 1)] = -7x - 7$$

- ☐  $\{-1\}$
- ☐  $\{2\}$
- ☐  $\{-12\}$
- ☐

$$\left\{ \frac{1}{6} \right\}$$

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A rational expression is the ratio of two:

- ☐ polynomials.
- ☐ integers.
- ☐ real numbers.
- ☐ functions.

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Determine whether the equation is an identity, a conditional equation, or an inconsistent equation.

$$2(4x + 14) = 8x + 28$$

- ☐ Identity
- ☐ Conditional equation

☐ Inconsistent equation

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Find all values of  $x$  satisfying the given conditions.

$$y_1 = \frac{x+6}{3}, y_2 = \frac{x+8}{6}, \text{ and } y_1 = y_2$$

- ☐  $\{-12\}$
- ☐  $\{3\}$
- ☐  $\{-4\}$
- ☐  $\{4\}$

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First, write the value(s) that make the denominator(s) zero. Then solve the equation.

$$\frac{x-6}{3x} + 2 = \frac{x+8}{x}$$

☐

No restrictions;  $\{\frac{7}{3}\}$

☐

$x \neq 0; \{\frac{15}{2}\}$

☐

$x \neq 0, 3; \{\frac{15}{2}\}$

☐  $x \neq 0; \{-14\}$

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How can we best describe these terms:

$$-x^2 + 2x - 1$$

- ☐ A prime polynomial
- ☐ An equation
- ☐ An indeterminate function
- ☐ An expression

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How many terms are there in the following expression:

$$3x^3 - 6x[2(4x + 2) + 12]$$

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 5

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If possible, factor:

$$f(x) = x^2 - 6x - 91$$

- ☐  $f(x) = (x - 13)(x - 7)$
- ☐  $f(x) = (x + 13)(x - 7)$
- ☐  $f(x) = (x - 13)(x + 7)$
- ☐  $f(x)$  cannot be simplified; it's prime

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If possible, factor:

$$f(x) = x^2 + 49$$

- ☐  $f(x) = (x + 7)^2$
- ☐  $f(x) = (x - 7)^2$
- ☐  $f(x) = (x + 7)(x - 7)$
- ☐  $f(x)$  cannot be simplified; it's prime

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If possible, reduce:

$$R(x) = \frac{x^2 - 1}{(x + 1)^2}$$

- ☐  $R(x) = \frac{x+1}{x-1}$
- ☐  $R(x) = \frac{x-1}{x+1}$
- ☐  $R(x) = x - 1$
- ☐  $R(x)$  cannot be simplified; it's prime

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Is this function a polynomial:

$$f(x) = x^{\frac{4}{2}} + 6\sqrt{2}$$

- ☐ No, the first term has a fractional exponent
- ☐ No, there is no "x" term
- ☐ No, the second term has an irrational exponent

☐ None of the above

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The equation  $V = -2000t + 20,000$  describes the value in dollars of a certain model of car after it is  $t$  years old. If a car is worth \$12,000, substitute 12,000 into the equation to find the age of the car.

- ☐ 5 years
- ☐ 4 years
- ☐ 6 years
- ☐ 3 years

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Use the five-step strategy for solving word problems to find the number or numbers described in the following exercise.

When 5 times a number is subtracted from 7 times the number, the result is 16. What is the number?

- ☐ 2
- ☐ 8
- ☐ 0.3
- ☐ -8

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What kind of function is this:

$$f(x) = 3x^3 - 5x^2 + 12$$

- ☐ It's a polynomial
- ☐ It's a rational equation
- ☐ Both of the above
- ☐ None of the above

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What, if anything, is wrong with this equation?

$$(x - y)^2 = x^2 - y^2$$

- ☐ You cannot distribute exponents
- ☐ You did not square the negative in front of the 'y'
- ☐ There is nothing wrong with the above equation
- ☐ None of the above

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When solving this expression, what is the last operation according to PEMDAS that will be followed?

$$6 + 3[17 + 2(8 - 4)] - 1^2$$

- ☐ Exponential
- ☐ Parentheses
- ☐ Subtraction
- ☐ Brackets

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When the number 0 was invented, what new number set came into being?

- ☐ Whole numbers
- ☐ Integers
- ☐ Counting numbers
- ☐ Natural numbers

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Which of the following operations always come before the others?

- ☐ Subtraction
- ☐ Cube root
- ☐ Multiplication
- ☐ Addition