Algebra I Practice Problems
March 30, 2023

Breakout #1 – FOIL

When written in standard form, the product of $(3 + x)$ and $(2x – 5)$ is:

1. $3x – 2$
2. $2x^2 + x – 15$
3. $2x^2 - 11x – 15$
4. $6x – 15 + 2x^2 – 5x$

Breakout #1 Bonus 1b – FOIL

$(x + 4)(x + 7)$

Breakout #1 Bonus 1c – FOIL

$(2x + 9)(2x – 3)$

Algebra I Practice Problems
March 30, 2023

Breakout #1 Bonus 1d – FOIL

Students were asked to write $2x^3 + 3x + 4x^2 + 1$ in standard form. Four student responses are shown below.

Alexa: $4x^2 + 3x + 2x^3 + 1$

Carol: $2x^3 + 3x + 4x^2 + 1$

Ryan: $2x^3 + 4x^2 + 3x + 1$

Eric: $1 + 2x^3 + 3x + 4x^2$

Which student's response is correct?

Breakout #1 Bonus 1e – FOIL

Factor the expression $y^4 - 36y^2$ completely.

Algebra I Practice Problems
March 30, 2023

Breakout #2 – unFOIL (Find the Roots)

$x^2 + 5x - 6$

1. $(x + 3)(x - 2)$
2. $(x + 2)(x - 3)$
3. $(x - 6)(x + 1)$
4. $(x + 6)(x - 1)$

Breakout #2 Bonus 2b – FOIL

Factor completely: $3y^2 - 12y - 288$

Algebra I Practice Problems
March 30, 2023

Breakout #2 – Bonus 2c

Which expressions is equivalent to $2x^2 + 8x – 10$?

1. $2(x – 1)(x + 5)$
2. $2(x + 1)(x – 5)$
3. $2(x – 1)(x – 5)$
4. $2(x + 1)(x + 5)$

Breakout #2 – Bonus 2d

The expression $36x^2 – 9$ is equivalent to:

1. $(6x\text{-}3)\ x^2$
2. $(18x – 4.5)\ x^2$
3. $(6x + 3)(6x – 3)$
4. $(18x + 4.5)(18x – 4.5)$

Breakout #2 – Bonus 2e

Which expression is equivalent to $x^2 + 5x – 6$?

1. $(x + 3)(x – 2)$
2. $(x + 2)(x – 3)$
3. $(x – 6)(x + 1)$
4. $(x +6)(x – 1)$

Algebra I Practice Problems
March 30, 2023

Breakout #3 – Word Problem (solve for "d")

Joe has dimes and nickels in his piggy bank totaling $1.45. The number of nickels he has is 5 more than twice the number of dimes (d). Which equation could be used to find the number of dimes he has?

1. 0.10d + 0.05 (2d +5) = 1.45
2. 0.10 (2d + 5) + 0.05d = 1.45
3. d + (2d + 5) = 1.45
4. (d – 5) + 2d = 1.45

Breakout #3 – Bonus 3b – Word Problem

At an amusement park, the cost for an adult admission is a, and for a child the cost is c. For a group of six that included two children, the cost was $325.94. For a group of five that included three children, the cost was $256.95. All ticket prices include tax.

- Write a system of equations, in terms of a and c, that models this situation.
- Use your system of equations to determine the exact cost of each type of ticket algebraically.
- Determine the cost for a group of four that includes three children.

Algebra I Practice Problems
March 30, 2023

Breakout #3 – Bonus 3c

Which domain is most appropriate for a function that represents the number of items, f(x), placed into a laundry basket each day, x, for the month of January?

1. integers
2. rational numbers
3. whole numbers
4. irrational numbers