READY

Topic: Multiplying two binomials

In the previous RSG, you were asked to use the distributive property on two different terms in the same problem. Example: *Multiply and simplify* $3x(4x + 1) + 2(4x + 1)$.

You may have noticed that the binomial $(4x + 1)$ occurred twice in the problem.

Here is a simpler way to write the same problem: $(3x + 2)(4x + 1)$.

You will use the distributive property twice. First multiply $3x(4x + 1)$; then multiply $+2(4x + 1)$. Add the like terms. Write the x² term first, the x-term second, and the constant term last.

$$3x(4x + 1) + 2(4x + 1) \rightarrow (12x^2 + 3x) + (8x + 2) \rightarrow 12x^2 + [3x + 8x] + 2 \rightarrow \underbrace{12x^2 + 11x + 2}$$

like terms

Simplified form

Multiply the two binomials. (Your answer should have 3 terms and be in this form $ax^2 + bx + c$.)

1. $(x + 5)(x - 7)$

2. $(x + 8)(x + 3)$

3. $(x - 9)(x - 4)$

4. $(x + 1)(x - 4)$

5. $(3x - 5)(x - 1)$

6. $(5x - 7)(3x + 1)$

7. $(4x - 2)(8x + 10)$

8. $(x + 6)(-2x + 5)$

9. $(8x - 3)(2x - 1)$

SET

Topic: Distinguishing between linear and quadratic patterns

Use first and second differences to identify the pattern in the tables as *linear, quadratic*, or *neither*. Write the recursive equation for the patterns that are linear or quadratic.

10.

x	y
-3	-23
-2	-17
-1	-11
0	-5
1	1
2	7
3	13

a. Pattern:
b. Recursive equation:

11.

x	y
-3	4
-2	0
-1	-2
0	-2
1	0
2	4
3	10

a. Pattern:
b. Recursive equation:

12.

x	y
-3	-15
-2	-10
-1	-5
0	0
1	5
2	10
3	15

a. Pattern:
b. Recursive equation:

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13.

x	y
-3	24
-2	22
-1	20
0	18
1	16
2	14
3	12

a. Pattern:
b. Recursive equation:

14.

x	y
-3	48
-2	22
-1	6
0	0
1	4
2	18
3	42

a. Pattern:
b. Recursive equation:

15.

x	y
-3	4
-2	1
-1	0
0	1
1	4
2	9
3	16

a. Pattern:
b. Recursive equation:

16.

Figure 1   Figure 2   Figure 3   Figure 4   Figure 5
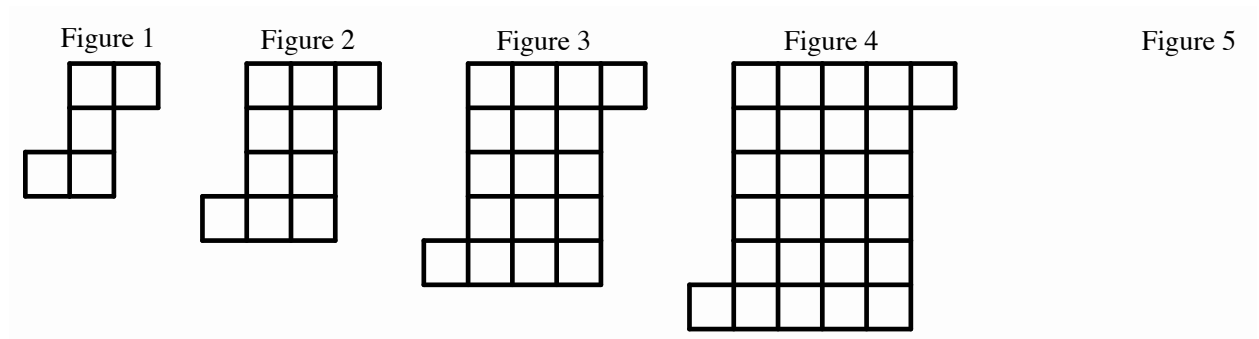
a. Draw figure 5.
b. Predict the number of squares in figure 30. Show what you did to get your prediction.

GO

Topic: Interpreting recursive equations to write a sequence

Write the first five terms of the sequence.

17. $f(0) = -5; f(n) = f(n-1) + 8$

18. $f(0) = 24; f(n) = f(n-1) - 5$

19. $f(0) = 25; f(n) = 3f(n-1)$

20. $f(0) = 6; f(n) = 2f(n-1)$

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