2.8

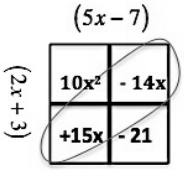
READY, SET, GO! Name Period Date

READY

Topic: Multiplying Binomials Using a Two-Way Table

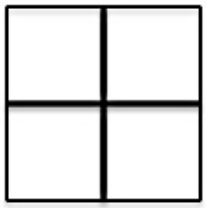
Multiply the following binomials using the given two-way table to assist you.

Example: (2x + 3)(5x – 7)

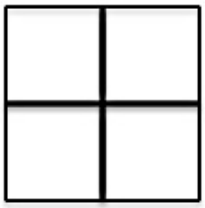


= $10x^2 + x - 21$

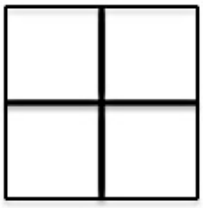
1. (3x – 4)(7x – 5)



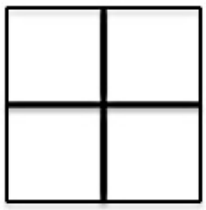
2. (9x + 2)(x + 6)



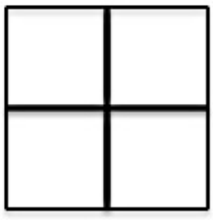
3. (4x – 3)(3x + 11)



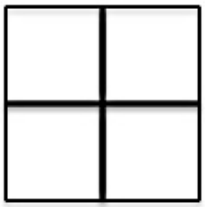
4. (7x + 3)(7x – 3)



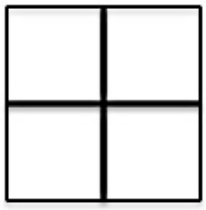
5. (3x – 10)(3x + 10)



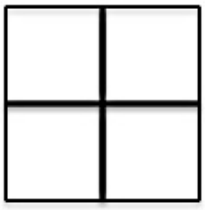
6. (11x + 5)(11x – 5)



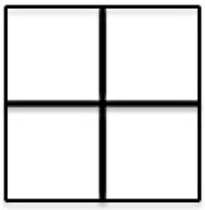
7. $(4x + 5)^2$



8. $(x + 9)^2$



9. $(10x - 7)^2$



10. The "like-term" boxes in #'s 7, 8, and 9 reveal a special pattern. Describe the relationship between the middle coefficient ***(b)*** and the coefficients ***(a)*** and ***(c).***

mathematics vision project

SET

Topic: Factored Form of a Quadratic Function

Given the *factored form* of a quadratic function, identify the vertex, intercepts, and vertical stretch of the parabola.

11. $y = 4(x-2)(x+6)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

12. $y = -3(x+2)(x-6)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter: _____
    d. Stretch _____

13. $y = (x+5)(x+7)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

14. $y = \frac{1}{2}(x-7)(x-7)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

15. $y = -\frac{1}{2}(x-8)(x+4)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter: _____
    d. Stretch _____

16. $y = \frac{3}{5}(x-25)(x-9)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

17. $y = \frac{3}{4}(x-3)(x+3)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

18. $y = -(x-5)(x+5)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter: _____
    d. Stretch _____

19. $y = \frac{2}{3}(x+10)(x+10)$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

GO

Topic: Vertex Form of a Quadratic Equation

Given the *vertex form* of a quadratic function, identify the vertex, intercepts, and vertical stretch of the parabola.

20. $y = (x+2)^2 - 4$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

21. $y = -3(x+6)^2 + 3$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter: _____
    d. Stretch _____

22. $y = 2(x-1)^2 - 8$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

23. $y = 4(x+2)^2 - 64$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

24. $y = -3(x-2)^2 + 48$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter: _____
    d. Stretch _____

25. $y = (x+6)^2 - 1$
    a. Vertex:_____
    b. x-inter(s) _____
    c. y-inter _____
    d. Stretch _____

26. Did you notice that the parabolas in problems 11, 12, & 13 are the same as the ones in problems 23, 24, & 25 respectively? If you didn't, go back and compare the answers in problems 11, 12, & 13 and problems 23, 24, & 25.

Prove that a. $4(x-2)(x+6) = 4(x+2)^2 - 64$

b. $-3(x+2)(x-6) = -3(x-2)^2 + 48$

c. $(x+5)(x+7) = (x+6)^2 - 1$