Quadratic Homework – Multiplying Binomials*

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Abstract

Some practice multiplying binomials to get quadratic equations.

(*or, "These are a few of my favorite formulae)

Exercise 1

Multiply: $(x+2)(x+2)$

Test your result by plugging $x=3$ into both my original function, and your resultant function. Do they come out the same?

Exercise 2

Multiply: $(x+3)(x+3)$

Test your result by plugging $x=-1$ into both my original function, and your resultant function. Do they come out the same?

Exercise 3

Multiply: $(x+5)(x+5)$

Test your result by plugging $x=$ into both my original function, and your resultant function. Do they come out the same?

Exercise 4

Multiply: $(x+a)(x+a)$

Now, leave x as it is, but plug $a=3$ into both my original function, and your resultant function. Do you get two functions that are equal? Do they look familiar?

Exercise 5

Do **not** answer these questions by multiplying them out explicitly. Instead, plug these numbers into the general formula for $(x+a)^2$ that you found in number 4.

a. $(x+4)(x+4)$
b. $(y+7)^2$
c. $(z+)^2$
d. $\left(m+\sqrt{2}\right)^2$
e. $(x-3)^2$ (*so in this case, (a is –3.)
f. $(x-1)^2$

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g. $(x-a)^2$

Exercise 6
Earlier in class, we found the following generalization: $(x+a)(x-a) = x^2 - a^2$. Just to refresh your memory on how we found that, test this generalization for the following cases.

a. $x = 10, a = 0$
b. $x = 10, a = 1$
c. $x = 10, a = 2$
d. $x = 10, a = 3$

Exercise 7
Test the same generalization by multiplying out $(x+a)(x-a)$ explicitly.

Exercise 8
Now, use that "difference between two squares" generalization. As in #5, do not solve these by multiplying them out, but by plugging appropriate values into the generalization in #6.

a. $(20+1)(20-1) =$
b. $(x+3)(x-3) =$
c. $\left(x+\sqrt{2}\right)\left(x-\sqrt{2}\right)$
d. $(x+2/3)(x-2/3)$