

Warmup**What percentage of trinomials are factorable?**

$$12/81 = 0.148 \text{ or } \sim 15\%$$

Yesterday we looked at how to factor trinomials of the form $ax^2 + bx + c$ (with $a = 1$). e.g: $x^2 + 7x + 12 = (x + 3)(x + 4)$.

How many trinomials are actually factorable over the integers? Let's investigate, using Photomath. We'll split up the work.

If a trinomial can be factored, circle it in the chart below.

	c = 1	c = 2	c = 3	c = 4	c = 5	c = 6	c = 7	c = 8	c = 9
b = 1	$x^2 + x + 1$	$x^2 + x + 2$	$x^2 + x + 3$	$x^2 + x + 4$	$x^2 + x + 5$	$x^2 + x + 6$	$x^2 + x + 7$	$x^2 + x + 8$	$x^2 + x + 9$
b = 2	$x^2 + 2x + 1$	$x^2 + 2x + 2$	$x^2 + 2x + 3$	$x^2 + 2x + 4$	$x^2 + 2x + 5$	$x^2 + 2x + 6$	$x^2 + 2x + 7$	$x^2 + 2x + 8$	$x^2 + 2x + 9$
b = 3	$x^2 + 3x + 1$	$x^2 + 3x + 2$	$x^2 + 3x + 3$	$x^2 + 3x + 4$	$x^2 + 3x + 5$	$x^2 + 3x + 6$	$x^2 + 3x + 7$	$x^2 + 3x + 8$	$x^2 + 3x + 9$
b = 4	$x^2 + 4x + 1$	$x^2 + 4x + 2$	$x^2 + 4x + 3$	$x^2 + 4x + 4$	$x^2 + 4x + 5$	$x^2 + 4x + 6$	$x^2 + 4x + 7$	$x^2 + 4x + 8$	$x^2 + 4x + 9$
b = 5	$x^2 + 5x + 1$	$x^2 + 5x + 2$	$x^2 + 5x + 3$	$x^2 + 5x + 4$	$x^2 + 5x + 5$	$x^2 + 5x + 6$	$x^2 + 5x + 7$	$x^2 + 5x + 8$	$x^2 + 5x + 9$
b = 6	$x^2 + 6x + 1$	$x^2 + 6x + 2$	$x^2 + 6x + 3$	$x^2 + 6x + 4$	$x^2 + 6x + 5$	$x^2 + 6x + 6$	$x^2 + 6x + 7$	$x^2 + 6x + 8$	$x^2 + 6x + 9$
b = 7	$x^2 + 7x + 1$	$x^2 + 7x + 2$	$x^2 + 7x + 3$	$x^2 + 7x + 4$	$x^2 + 7x + 5$	$x^2 + 7x + 6$	$x^2 + 7x + 7$	$x^2 + 7x + 8$	$x^2 + 7x + 9$
b = 8	$x^2 + 8x + 1$	$x^2 + 8x + 2$	$x^2 + 8x + 3$	$x^2 + 8x + 4$	$x^2 + 8x + 5$	$x^2 + 8x + 6$	$x^2 + 8x + 7$	$x^2 + 8x + 8$	$x^2 + 8x + 9$
b = 9	$x^2 + 9x + 1$	$x^2 + 9x + 2$	$x^2 + 9x + 3$	$x^2 + 9x + 4$	$x^2 + 9x + 5$	$x^2 + 9x + 6$	$x^2 + 9x + 7$	$x^2 + 9x + 8$	$x^2 + 9x + 9$