Factoring Trinomials

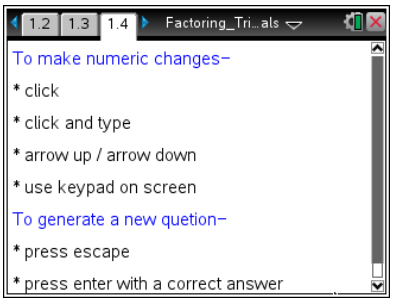
Student Activity

Name _____

Class _____

Open the TI-Nspire document *Factoring_Trinomials.tns.*

Using the algebra tiles provided, factor trinomials in the form: $ax^2 + bx + c$. Reflect on the possible binomial factors of given trinomials.



Move to page 1.2.

Press ctrl ▶ and ctrl ◀ to navigate through the lesson.

The trinomials on this page are in the form: $ax^2 + bx + c$. Factor the trinomial given. Change the binomial factors represented by the algebra tiles accordingly. A message will appear when the two binomials are the factors of the trinomial given.

Tech Tip: Click on the constant numbers to increase the number. To change from addition to subtraction, click on the sign. Alternatively, students can click on the keypad box in the lower-right corner of the screen.

1. Press esc to generate a new trinomial to factor. Fill in the table with eight examples of factored trinomials.

Trinomial	*b*	*c*	Factor 1	Factor 2

2. Use the examples shown in the table to explain, in your own words, how to factor a trinomial of the form: $x^2 + bx + c$. Be sure to mention the signs in the factors.

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3. Given the trinomial: $x^2 + bx + 12$, find the six possible values of b so that the trinomial factors (over the set of integers) to two binomials. State the value of b and the factors for each case. Why are these the only factors?

b	Factor 1	Factor 2

b	Factor 1	Factor 2

Move to page 1.3. Read the directions on pages 1.4 and 1.5 to use the simulation on page 1.3.

The trinomials on this page are in the form: $ax^2 + bx + c$.

Tech Tip: You may edit both the constant term and the coefficient of x in the binomial factors.

4. Using trial and error, factor the trinomial given. Fill in the table with eight examples of factored trinomials.

Trinomial	*a*	*b*	*c*	Factor 1	Factor 2

5. Use the examples shown in the table to explain in your own words how to factor a trinomial of the form $ax^2 + bx + c$.

6. Given the trinomial: $6x^2 + bx + c$, list all the possible sets of integers that could be the coefficients of x in the binomial factors.

7. Given the trinomial $3x^2 + bx + 2$, find the four possible values of b so that the trinomial factors, over the set of integers, to two binomials. State the value of b and the factors for each case.

b	Factor 1	Factor 2

b	Factor 1	Factor 2

8. For which trinomial would it be easier to find all the factors, $19x^2 + bx - 7$ or $15x^2 + bx - 24$? Explain your answer.

9. Drew thinks the trinomial $6x^2 + x - 2$ factors as $(2x + 1)(3x - 2)$, but Kat thinks its factors are $(2x + 1)(3x + 2)$. Who is right? Explain.

Move to pages 2.1–2.2.

You can now practice factoring trinomials. Read the directions on page 2.1, and then move to page 2.2. There are three levels of practice. Level 1 being the least difficult and level 3 being the move difficult. Try to factor at least 6 trinomials at each level.

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