

## Accuplacer Study Modules

TOPIC: Factor Trinomials: Lead Coefficient = 1

Khan Academy Link: [https://www.khanacademy.org/math/algebra2/polynomial-functions/factoring-polynomials-quadratic-forms-alg2/e/factoring\\_polynomials\\_1](https://www.khanacademy.org/math/algebra2/polynomial-functions/factoring-polynomials-quadratic-forms-alg2/e/factoring_polynomials_1)

Steps to factor trinomials when the lead coefficient =1 :

1. Identify a,b, and c in the trinomial  $ax^2 + bx+c$
2. Write down all factor pairs of c
3. Identify which factor pair from the previous step sums up to b
4. Substitute factor pairs into two binomials

Sample Problem:

Factor the trinomial  $x^2 -2x -15$

**Step 1: Identify a,b, and c in the trinomial  $ax^2 + bx+c$**

$$a = 1 \quad b = -2 \quad c = -15$$

**Step 2: Write down the factor pairs of -15** (Since the value is negative, one factor is positive and one is negative.) Reminder: positive x negative = negative or neg X pos = neg

$$1 \times -15$$

$$-1 \times 15$$

$$3 \times -5$$

$$-3 \times 5$$

**Step 3: Identify which factor pair from the previous step has a sum of -2**

Factor Pairs	Sum of Factors
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1 x -15	$1 + -15 = -14$
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-1 x 15	$-1 + 15 = 14$
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<b>3 x -5</b>	<b><math>3 + -5 = -2</math></b>
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-3 x 5	$-3 + 5 = 2$
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**Step 4: Substitute factor pairs into two binomials:**

$$(x+3)(x-5)$$

Use the Foil or box method to check your answer!

Now try the four practice problems on the next page and check your answers.

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TOPIC: Factor Trinomials: Lead Coefficient = 1

1. Factor  $x^2 + 13x + 22$  completely.

2. Factor  $x^2 - 19x + 90$  completely.

3. Factor  $x^2 + 9x + 20$  completely.

4. Factor  $x^2 + 5x - 24$  completely.