

Factor the polynomial using the GCF.

1. $5x^2 - 5x - 5$

2. $-x^3 + 12x^2 - 4x$

3. $4z^2 - 96z - 8$

4. $81y^2 + 36y - 3$

5. $7x^2y + 10xy + 11y$

6. $15t^2 - 45t + 90$

Warm Up

Write an equation in slope-intercept form of the line that passes through the given points.

1. (8, 1), (3, 11)

2. (7, -2), (4, -8)

Cumulative Warm Up

Essential Question

How can you use algebra tiles to factor the trinomial $ax^2 + bx + c$ into the product of two binomials?

Essential Question

• GCF: greatest common factor

• review - practice

Slope formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

either

$$y = mx + b \quad y - y_1 = m(x - x_1)$$

What you will learn

• factor $ax^2 + bx + c$

• Use factoring to solve real-life problems.

- Factor GCF first
- Use AC method

Factor $5x^2 + 15x + 10$.

$$\frac{2 \cdot 1}{1 \cdot 2}$$

$$5(x^2 + 3x + 2)$$

$$5(x^2 + 1x) + (2x + 2)$$

$$5(x(x+1) + 2(x+1))$$

$$5(x+1)(x+2)$$

Example 1

Factor each polynomial.

a. $4x^2 + 13x + 3$

$$(4x^2 + 12x) + (1x + 3)$$

$$4x(x+3) + 1(x+3)$$

$$(x+3)(4x+1)$$

b. $3x^2 - 7x + 2$

$$(3x^2 - 3x) - (2x - 2)$$

$$3x(x-1) - 2(x-1)$$

$$(x-1)(3x-2)$$

Example 2

Factor $2x^2 - 5x - 7$.

$$(2x^2 + 2x) - (7x + 7)$$

$$2x(x+1) - 7(x+1)$$

$$(x+1)(2x-7)$$

Example 3

ac method

$$(4x+1)(x+3)$$

Student practice

Factor $-4x^2 - 8x + 5$.

$$-1(4x^2 + 8x - 5)$$

$$-1[(4x^2 - 2x) + (10x - 5)]$$

$$-1[2x(2x - 1) + 5(2x - 1)]$$

$$-1(2x - 1)(2x + 5)$$

$$\begin{array}{r} 20 \\ -1 + 20 \\ -2 + 10 \\ -4 + 5 \end{array}$$

Example 4

Factor the polynomial.

1. $8x^2 - 56x + 48$	2. $14x^2 + 31x + 15$	3. $2x^2 - 7x + 5$
4. $3x^2 - 14x + 8$	5. $4x^2 - 19x - 5$	6. $6x^2 + x - 12$
7. $-2y^2 - 5y - 3$	8. $-5m^2 + 6m - 1$	9. $-3x^2 - x + 2$

Monitoring Progress 1-9

The length of a rectangular game reserve is 1 mile longer than twice the width. The area of the reserve is 55 square miles. What is the width of the reserve?

Example 5

When leading coefficient is a negative 1, factor out the negative first so IC is positive

* Student practice

