

2.6 & 2.7 Factor $x^2 + bx + c$ and $ax^2 + bx + c$

Georgia
Performance
Standard(s)

MM1A2f

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Factor expressions by greatest common factor, grouping, trial and error, and special products limited to the formulas below.

$$(x + y)^2 = x^2 + 2xy + y^2$$

$$(x - y)^2 = x^2 - 2xy + y^2$$

$$(x + y)(x - y) = x^2 - y^2$$

$$(x + a)(x + b) = x^2 + (a + b)x + ab$$

$$(x + y)^3 = x^3 + 3x^2y + 3xy^2 + y^3$$

$$(x - y)^3 = x^3 - 3x^2y + 3xy^2 - y^3$$



Factor the polynomial.

$$t^2 - 4t - 21$$

What are factors of -21 that
add up to -4?

$$(t - 7)(t + 3)$$

21

$$1 \times 21$$

$$3 \times 7$$

$$3 + -7 = -4$$



$$x + 9x + 8$$



$$a^2 - 5a + 6.$$



Terms 1st 2nd 3rd

$$4y^2 - 20y + 25$$

Always take the sign of the first box.

Top Left is 1st Term

Bottom Right is 3rd Term

Multiply 1st & 3rd Term

What are factors of 100 that add up to -20?

100

$$1 \times 100$$

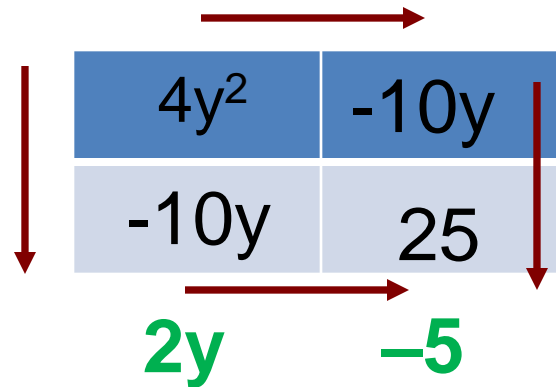
$$2 \times 50$$

$$4 \times 25$$

$$5 \times 20$$

$$10 \times 10 \quad -10 \times -10 = 100$$

$$-10 + -10 = -20$$



2y

-5

$$4y^2 \times 25$$

$$100y^2$$

$$-10y \quad -10y$$

$$-20y$$

Write 2nd Term

$$(2y - 5)(2y - 5)$$

$$(2y - 5)^2$$



Factor the polynomial.

$$10m^3 + 2m^2 - 36m$$

First find the
Greatest
Common
Factor.

$$2m = \text{GCF}$$

$$\frac{10m^3 + 2m^2 - 36m}{2m \quad 2m \quad 2m}$$

$$2m(5m^2 + m - 18)$$

$$5m^2 + m - 18$$

$5m^2$	$-9m$
$10m$	-18

$$5m \quad -9$$

$$(5m - 9)(m + 2)$$

$$2m(5m - 9)(m + 2)$$

$$-90m^2$$

$$10m \quad -9m$$

$$m \quad 1m$$

2

What are factors of -90
that add up to 1?

$$90$$

$$1 \times 90$$

$$2 \times 45$$

$$3 \times 30$$

$$5 \times 18$$

$$6 \times 15$$

$$9 \times 10$$

$$-9 + 10 = 1$$

$$-9 \times 10 = -90$$



$$3x^2 - 5x + 2$$



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



Assignment:

p. 76 18

p. 83 4 – 12 even

p. 87 4 – 8 even, 18, 28

