

# Algebra

## Factoring Trinomials

$$ax^2 + bx + c$$

$$\begin{aligned} & 2x^2 + 15x + 18 \\ & (2x^2 + 12x) + (3x + 18) \\ & 2x(x+6) + 3(x+6) \\ & (x+6)(2x+3) \end{aligned}$$

$$a = 2$$

$$b = 15$$

$$c = 18$$

multiplies to

$2x^2$	$12x$
$3x$	$18$

36

adds to 15

$$\begin{aligned} & 3x^2 - 3x - 18 \\ & (3x^2 - 9x) + (6x - 18) \\ & 3x(x-3) + 6(x-3) \\ & (x-3)(3x+6) \end{aligned}$$

$$a = 3$$

$$b = -3$$

$$c = -18$$

times to  $3(-18) = -54$

add to  $-3$

$$-9 + 6$$

$3x + 6$

$3x^2$	$-9x$
$6x$	$-18$

p. 27

$$\begin{aligned} & 7.) \quad 2a^2 + 5a + 3 \\ & (2a^2 + 2a) + (3a + 3) \\ & 2a(a+1) + 3(a+1) \\ & (a+1)(2a+3) \end{aligned}$$

$$a = 2$$

$$b = 5$$

$$c = 3$$

multiply 6

add 5

2, 3

p. 27

#3

$$16r^2 - 8r + 1$$

$$(16r^2 - 4r)(-4r + 1)$$

$$4r(4r - 1) - 1(4r - 1)$$

$$(4r - 1)(4r - 1)$$

$$(4r - 1)^2$$

#18

$$18 + 11y + 2y^2$$

$$2y^2 + 11y + 18$$

prime

a = 2

1, 36

b = 11

2, 18

c = 18

3, 12

multiply = 36

4, 9

add = 11

6, 6

p. 28.

1.  $8x^2 + 2x - 3 = 0$

$(8x^2 - 4x) + 6x - 3 = 0$

$4x(2x - 1) + 3(2x - 1) = 0$

$(4x + 3)(2x - 1) = 0$

$4x + 3 = 0$

$2x - 1 = 0$

$\frac{4x}{4} = \frac{-3}{4}$

$x = -\frac{3}{4}$

$x = \frac{1}{2}$

a = 8

1, 24

b = 2

2, 12

c = -3

3, 8

multiply = -24

4, 6

add = 2