

for test

→ distributive property

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

$$5(2y^2 - 2) = 10y^2 - 10$$

$$4k(3k+7) = 12k^2 + 28k$$

→ multiplication of binomials

$$\begin{aligned}(x+2)(x-5) &= x^2 - 5x + 2x - 10 \\ &= x^2 - 3x - 10\end{aligned}$$

→ special cases

$$(x+6)^2 = x^2 + 12x + 36$$

$$(y+3)(y-3) = y^2 - 9$$

→ common factors

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

$$2a^2 + 4a = 2a(a+2)$$

$$11k^2x + 77kx = 11kx(k+7)$$

→ Factoring special polynomials

Perfect-Square trinomial

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

$$x^2 - 10x + 25 = (x-5)^2$$

Difference of two squares

$$a^2 - b^2 = (a+b)(a-b)$$

$$36x^2 - 49y^2 = (6x+7y)(6x-7y)$$

Factoring Quadratic Trinomials

$$x^2 - 18x + 81 = (x-9)^2$$

$$x^2 + 3x - 18 = (x+6)(x-3)$$

$$x^2 + 7x + 12 = (x+3)(x+4)$$

Finding the zeros

if $a \cdot b = 0$ then $a = 0$
or $b = 0$

if $x^2 + 5x - 6 = 0$

$$(x+6)(x-1) = 0$$

$$x+6=0$$

$$x=-6$$

$$x-1=0$$

$$x=1$$

Study Guide

$$1) x(x-5) =$$

$$2) 4y(y+2) =$$

$$3) -x(2x-3) =$$

$$4) (y+9)(y-2) =$$

$$5) (x+3)(x-4) =$$

$$6) (4w^2-5)(3w+2) =$$

$$7) (x+1)(x+1) =$$

$$8) (3x-8)(3x+8) =$$

$$9) (2k+4)(2k+4)=$$

$$10) (4y^2+2)(4y^2-2)=$$

$$11) (5x-2)^2 =$$

$$12) (a+b)(a+b)=$$

$$13) (a-b)(a+b)=$$

$$14) a^2(a+2) =$$

$$15) (x+7)(x-7)=$$

$$16) (x+4)(x^2+3x-7)=$$

$$17) (4w+3z)(w+z)=$$

Find common factors

$$18) x^2 + 2x =$$

$$19) b^3 + 2b^2 + 5b =$$

$$20) 2a^2 + 4a =$$

$$21) 9x^2 + 15x =$$

$$22) 12a^2b + 16ab^2 =$$

Factor the trinomials

$$23) x^2 + 16x + 64 =$$

$$24) x^2 + 10x + 25 =$$

$$25) k^2 - m^2 =$$

$$26) 36x^2 - 49y^2 =$$

Factor the trinomials
and find the zeros

$$27) x^2 - 7x + 12 = 0$$

$$28) x^2 - 9x - 36 = 0$$

$$29) y^2 + 3y - 18 = 0$$

$$30) k^2 - 10k + 9 = 0$$

$$31) 9x^2 - 64 = 0$$