Previously:

Add polynomials $(2x^2-7)+$
$3x^2-10x+4$ (x^2-3x+4)

Multiply polynomials $(2x-7)(x+2)$
$2x^2-3x+-14$ ∴

Factor out GCF $2x^2+4x$
$2x(x+2)$

Solve factored polynomials
$(x+2)(2x-4)=0$

$x+2=0$ $2x-4=0$

$x=-2$ or $x=2$

Factoring $x^2 + bx + c$: $\longrightarrow (x+p)(x+q)$

$(x+7)(x+8)$

$x^2+8x+7x+56$

$x^2+15x+56$

Reverse-multiply polynomials

Find p and q so that:

$p + q = b$

$pq = c$

$(x+p)(x+q)$

$x^2 + \boxed{q\cdot x + p\cdot x} + pq$

$x^2 + (p+q)x + pq$

How to factor: $x^2 + bx + c$: → (x+p) (x+q)

$$x^2 + 7x + 12$$

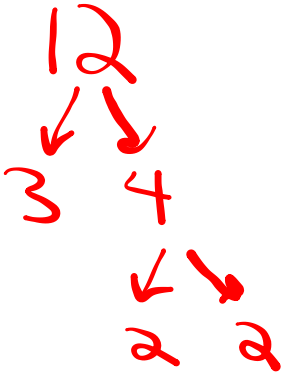
p × q	p+q (b)	pq (c)
1 × 12	13	12
2 × 6	8	12
3 × 4	7	12

Find all the factors (p and q) of c

See which factors work:

p + q = b

pq = c



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

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

$$x^2 + 7x + 12$$

How to know the signs of *p* and *q*:

$x^2 + bx + c \rightarrow (x+p)(x+q)$

b (*p*+*q*)	*c* (*pq*)	*p*	*q*
+	+	+	+
−	+	−	−
−	−	opposite	
+	−	opposite	

Use the signs of b and c to determine the signs of p and q

$-x^2+2x+1$

$-1(x^2-2x-1)$

x^2+2x+3

$x^2-6x+11$

x^2-4x-7

x^2+3x-4

$(x+\quad)(x-\quad)$

Factor the trinomial.

$x^2 - 7x + 10$

1. $x^2 + 8x + 7$

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

p	q	b(p+q)	c(p·q)
1	7	8	7

2. ~~$b^2 - 7b + 10$~~

$(x-2)(x-5)$

p	q	b(p+q)	c(p·q)
1	10	11	10
2	5	7	10

3. $w^2 - 12w - 13$

$(w+1)(w-13)$

1	−13	−12	−13
−1	13	12	−13

4. $p^2 + 10p + 25$

$(x+5)^2$

p	q	b(p+q)	c(p·q)
1	25	26	25
5	5	10	25

$(x+5)(x+5)$

5. $m^2 - 10m + 24$

$(m-4)(m-6)$

1	24	25	24
2	12	14	24
3	8	11	24
4	6	10	24

6. $y^2 - 5y - 24$

$(y+3)(y-8)$

1	24	23	
1	−24		
2	12	10	
2	−12		
−3	8	5	−24
3	−8	−5	−24
4	6	2	
4	−6		

Solve a polynomial equation: $ax^2 + bx + c=O$

$$x(x + 17) = -60$$

Simplify and rearrange the equation so that is in the format shown above

Factor the resulting polynomial

Use the zero-products property

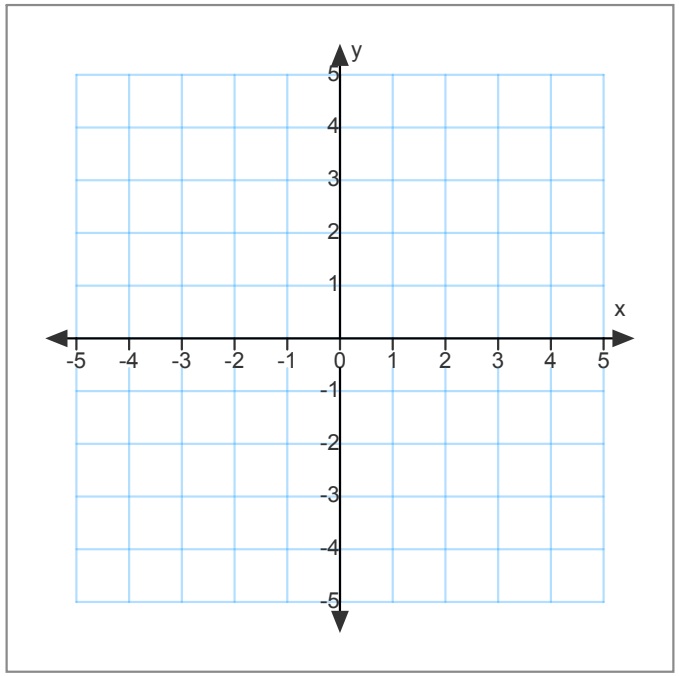
28. $n(n + 6) = 7$

29. $s^2 - 3(s + 2) = 4$

30. $d^2 + 18(d + 4) = -9$

What does a solution to a polynomial look like?

$$x^2 - 5x + 6$$



Finding "zeros" of a polynomial function:

$f(x) = x^2 - 5x - 36$

"f(x)" means y

To solve a polynomial means to find where y = 0 (in other words, find the x-intercept)

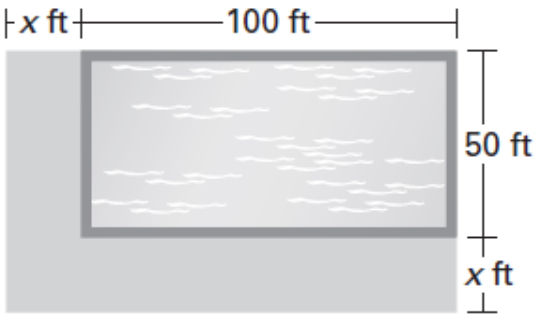
So: set f(x) = 0, then solve the resulting equation (THIS IS WHAT WE JUST DID!!)

22. $f(x) = x^2 + 11x + 28$ **23.** $g(x) = x^2 + 11x - 12$ **24.** $h(x) = x^2 + 3x - 18$

Patio Area A community center is building a patio area along two sides of its pool. The pool is rectangular with a width of 50 feet and a length of 100 feet. The patio area will have the same width on each side of the pool.

a. Write a polynomial that represents the combined area of the pool and the patio area.

b. The combined area of the pool and patio area should be 8400 square feet. How wide should the patio area be?



Homework:

p. 586, 20-28 all; ~~31-41 odd; 59, 60~~