5.4 - Factoring Trinomials, x^2+bx+c

Note Title

Lets observe some patterns.

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

So to factor x^2+bx+c we look for 2 numbers that

_____ to ___ and _____ to _____

(1) Factor

a) $x^2+9x+20$

b) $t^2-12t+32$

So if c is positive, then the 2 numbers have _____, and b determines it.

(2) Factor

a) $r^2 + 5r - 36$

b) $q^2 - 3q - 40$

So if c is negative, then the 2 numbers have _____, and b determines which sign will be "_____" (that is, have more absolute value weight)

When factoring always factor out the _____ first.

(3) Factor completely

a) $x^3 + 3x^2 - 4x$

b) $y^2 + 6y + 15$

c) $a^2 - 2ab - 48b^2$

d) $2t^2 + 32t - 72$

(4) Solve

a) $x^2 - 5x - 6 = 0$

b) $(z+4)(z-2) = -5$

c) $2x^5 = 26x^3 - 72x$

(Graph when done, to observe roots/zeros.
Use $-5 \le x \le 5$
$-75 \le y \le 75$)

(5) Write a polynomial function $f(x)$ in standard form whose zeros are $-3, 0, 4$.

Practice for you

(6) Factor

a) x^2+5x+6

b) x^2-5x-6

c) x^2-5x+6

d) x^2+5x-6

(7) Solve

a) $3r^3=45r^2+48r$

b) $r^3-3r^2=4r-12$