3.) $45x^2 - 25$

$5(9x^2 - 5)$

4.) $1 + 2n^2$

not factorable

7.) $7ab - 35a^2b$

$7ab(1 - 5a)$

8.) $27x^2y^5 - 72x^3y^2$

$9x^2y^2(3y^3 - 8x)$

1.) $\underbrace{40r^3 - 8r^2}\underbrace{- 25r + 5}$

$\underbrace{8r^2(5r-1)}\underbrace{-5(5r-1)}$

$(5r-1)(8r^2-5)$

10.) $5n^2 - 20$

$5(n^2 - 4)$

$5(n-2)(n+2)$

11.) $16x^2 - 36$

$4(4x^2 - 9)$

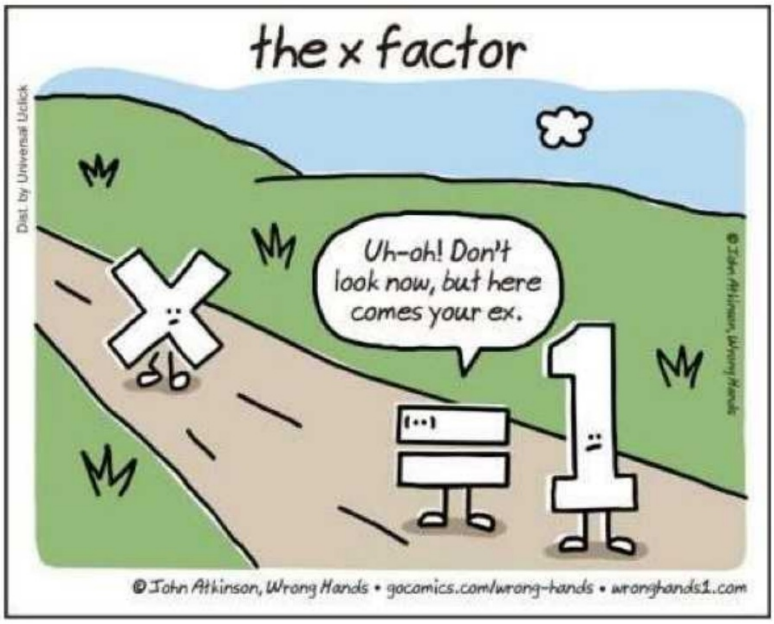
$4(2x+3)(2x-3)$

13.) $18a^2 - 50b^2$

$2(9a^2 - 25b^2)$

$2(3a + 5b)(3a - 5b)$

Factoring $x^2 + bx + c$ ($a = 1$)



$$x^2 + bx + c$$

To factor a trinomial of the form above, you must find two integers that <u>MULTIPLY TO C</u>, AND <u>ADD UP TO B</u>.

a) $x^2 + 7x + 12$

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

$1 \cdot 12$
$2 \cdot 6$
$3 \cdot 4$

① $x^2 + 7x + 12$
$(x+4)(x+3)$
$x^2 + 4x + 3x + 12$
$x^2 + 7x + 12$

b) $n^2 + 9n + 20$

$(n+5)(n+4)$

c) $h^2 + 9h + 18$

$(h+6)(h+3)$

Check
$h^2 + 3h + 6h + 18$

d) $a^2 + 10a + 24$

$(a+6)(a+4)$

e) $k^2 + 6k + 5$

$(k+1)(k+5)$

f) $y^2 + 2y + 1$

$(y+1)(y+1)$

g) $x^2 - 14x + 49$

$(x-7)(x-7)$

$-7 \cdot -7$

h − l

h) $n^2 - 17n + 72$

$(n-9)(n-8)$

i) $h^2 - 15h + 50$

$(h-10)(h-5)$

j) $a^2 - 16a + 48$

$(a-4)(a-12)$

$1 \cdot 48$
$2 \cdot 24$
$3 \cdot 16$
$4 \cdot 12$
$6 \cdot 8$

k) $k^2 - 3k + 2$

$(k-2)(k-1)$

l) $y^2 - 17y + 70$

$(y-10)(y-7)$

m) $x^2 + 3x - 18$

$(x + 6)(x - 3)$

-18

$9 \cdot -2$

$-9 \cdot 2$

$-6 \cdot 3$

$6 \cdot -3$

n) $n^2 + 2n - 8$

$(n + 4)(n - 2)$

-8

$4 \cdot -2$

$-4 \cdot 2$

o) $h^2 + 3h - 10$

$(h + 5)(h - 2)$

$x^2 + 10xy - 24y^2$

$(x - 2y)(x + 12y)$

$-2 \cdot 12$

p) $a^2 + 3a - 54$

$(a+9)(a-6)$

q) $k^2 + 4k - 45$

$(k+9)(k-5)$

r) $y^2 + 3y - 28$

$(y+7)(y-4)$

s) $x^2 - 2x - 63$

$(x-9)(x+7)$

t) $n^2 - 2n - 3$

$(n-3)(n+1)$

u) $h^2 - 12h - 64$

$(h-16)(h+4)$

v) $a^2 - 14a - 72$

$(a - 18)(a + 4)$

w) $k^2 - 26k - 56$

$(k - 28)(k + 2)$

x) $y^2 - 5y - 84$

$(y - 12)(y + 7)$

Factor out a GCF first!!!

1) $4y^2 + 12y + 8$

2) $2x^2 - 8x - 24$

3) $3c^2 - 15c + 12$

4) $3a^2 + 30a + 63a$

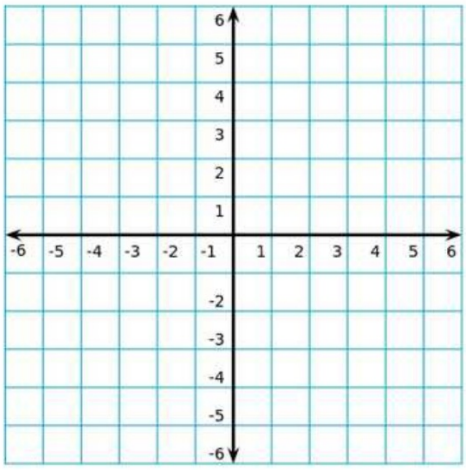
5) $2b^2 + 10a + 12$

6) $5x^2 - 15x - 140$

REVIEW:

a) Graph the following quadratic function in standard form:

$$f(x) = x^2 + 10x + 20$$

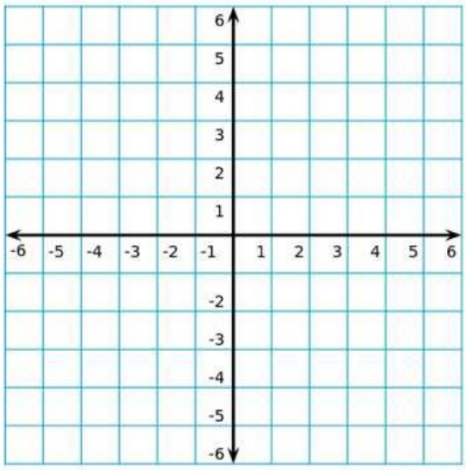


Vertex:_____ AOS:_____ y-int:_____

(INT) Domain: _____ Range:_____

b) Graph the following quadratic function in vertex form:

$$f(x) = (x - 3)^2 - 1$$



Vertex:_____ AOS:_____ y-int:_____

(INT) Domain: _____ Range:_____