

**Common Factoring**Date: Feb 28/11Factoring: Expressing a polynomial as a **product** of polynomials.

$$\xrightarrow{\text{Expanding}}$$

$$3x(x-7) = 3x^2 - 21x$$

$$\xleftarrow{\text{Factoring}}$$

**Ex. 1:** Factor, using the greatest common factor.

a)  $4x^3 - 6x^2$

b)

$6x^2 - 4x + 8$

c)

$10a^2b^3 + 20a^3b - 5ab^3$

$$= 2x^2(2x-3) \quad = 2(3x^2-2x+4) \quad = 5ab(2ab^2+4a^2-b^2)$$

d)  $2xy - 5y$

e)

$2xz^3 - 5z^3$

f)

$$2x(x-3) - 5(x-3)$$

*let w = x-3*

$2xw - 5w$

$= y(2x-5)$

$= z^3(2x-5)$

$= (x-3)(2x-5)$

g)  $4y(y-2) + (3y+4)(y-2)$

h)  $-12x^2 - 14x$

$$= (y-2)(4y + (3y+4))$$

$$= (y-2)(7y+4)$$

$$= -2x(6x+7)$$

*positive*

\*\*opposites

$-x+3$

$-1(x+3)$

$$= 3-x$$

*x-3*

$$= -1(y-4)$$

$$(x-3)(2x-5)$$

$2(4-x)$

$$= 2(-1)(x-4)$$

$$= -2(x-4)$$

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

j)  $7x(2x-5) - 3(5-2x)$

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

$$= 7x(2x-5) + 3(2x-5)$$

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

$= (2x-5)(7x+3)$

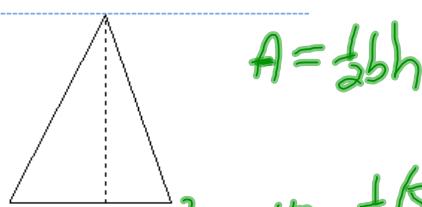
$A = \frac{bh}{2}$

**Ex. 2:** The area,  $A$ , of each figure is given. Determine the unknown measurement.

(a)  $A = 18x^2 - 12x$



(b)  $A = 15m^2 - 5m + 10$



$$A = \frac{lw}{2}$$

$$18x^2 - 12x = l(6x)$$

$$18x^2 - 12x = 6x(l)$$

$$18x^2 - 12x = 6x(3x-2)$$

$$15m^2 - 5m + 10 = \frac{1}{2}(5)h$$

$$5(3m^2 - m + 2) = 5h(\frac{1}{2})$$

$$3m^2 - m + 2 = \frac{h}{2}$$

$$2(3m^2 - m + 2) = 2(\frac{h}{2})$$

$$6m^2 - 2m + 4 = h$$