Distributive Law (Simplifying).

$(3)(5)$ → 3 times 5

$3(x+1)$ means: 3 times both x and +1.

Expand: $3(x+1)$

$= 3x+3$

Simplify: expand using distributive property

$(4)(x+3) - (+2x+1)$

$= 4x + 12 - (+2x) - (+1)$

$= 4x + 12 - 2x - 1$

$= 4x - 2x + 12 - 1$

$= 2x + 11$

Distributive Law:

$$a(b+c) = ab + ac$$

$a(b+c) = ab + ac$

You TRY: Expand and Simplify:

a) $3(x-4)$

$= 3x - 12$

b) $-3(x-4)$

$= -3x + 12$

c) $2(4x-1)$

$= 8x-2$

d) $(2)(3x^2+1)$

$= 6x^2+2$

e) $(-4)(3x^2+x-5)$

$= -4(3x^2) + (-4)(x) + (-4)(-5)$

$= -12x^2 - 4x + (+20)$

$= -12x^2 - 4x + 20$

e) $-4(3x^2+1x-5)$

$= -12x^2 - 4x + 20$

Example:

a) $x(3x+1)$

$= 3x^2 + x$

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

$= x^3 - 4x^2 + 3x$

Exponent Laws

- $(x^3)(x^2)$

  $= x^{3+2} = x^5$

- $x^1(x^1) = x^{1+1}$

  $= x^2$

You try:

a) $4(3x+1)$ ans: $12x+4$

b) $-3(5x-2)$ ans: $-15x+6$

c) $2(x-1)-3(x+1)$ ans: $-x-5$

d) $x(4x-1)$ ans: $4x^2-x$

e) $x(3x^2-5x-6)$ anc: $3x^3-5x^2-6x$

f) $2x(4x^2+3x-1)$ ans: $8x^3+6x^2-2x$

$2x(-1)$

$= 2(-1)x$

$= -2x$

$= 8x^{1+2}$ | $= 6x^2$

c) $2(x-1)-3(x+1)$

$= 2x-2-3x-3$

$= 2x-3x-2-3$

$= \boxed{-x-5}$

f) $2x(4x^2+3x-1)$

$= 8x^{1+2}+6x^{1+1}-2x$

$= \boxed{8x^3+6x^2-2x}$