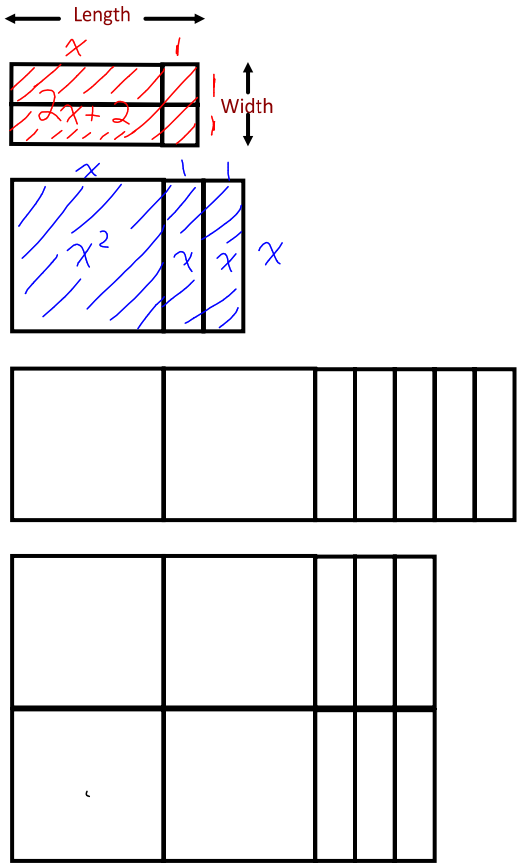
# 2.5 Distributive Property - Day 1

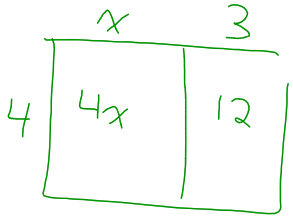

## INVESTIGATION!



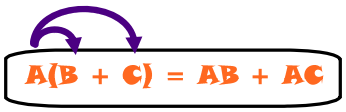

| Width | Length | Area |
|---|---|---|
| 2 | x + 1 | 2x + 2 |
| x | x+2 | x² + 2x |
| x | 2x+5 | 2x²+5x |
| 2x | 2x + 3 | 4x²+6x |

***2. Describe how you can start with the expression on the left and get the expression on the right.***

***3. a)*** ***4(x+3)*** = 4x+12 ***b)*** ***x(2x+7)*** = 2x²+7x ***c)*** ***3x(x+2)*** = 3x²+6x



When you apply the distributive property,
you are expanding an expression.




Ex. 1 Simplify. → means the same as "expand" or "get rid of brackets"

a) 5(4x - 1)

= 20x - 5

b) -3(2x - 7)

= -6x + 21

Using an area model...

| | 4x | -1 |
|---|---|---|
| 5 | 20x | -5 |

| | | |
|---|---|---|
| | | |

c) -1(2x - 4)

= -2x + 4

d) 3 - 2(7 + 6x)

= 3 - 14 - 12x

= -11 - 12x

= -12x - 11

Now you try a few....

e) -4( y - 5)

= -4y + 20

f) 2(-x + 2)

= -2x + 4

Remember: Use the product rule for exponents if multiplying the same bases.

$(m^a)(m^b) = m^{a+b}$

Ex 2

a) $8m(2m + 5m^2)$

$= 16m^2 + 40m^3$

$= 40m^3 + 16m^2$

b) $4x(1 - 2x) - 7x(3x - 4)$

$= 4x - 8x^2 - 21x^2 + 28x$

$= -29x^2 + 32x$

Toughie

Brackets within brackets? Work inside out.

c) $5[x + 3(x + 2)]$

$= 5(x + 3x + 6)$

$= 5(4x + 6)$

$= 20x + 30$

d) $-4[5(m - 3) - m]$

$= -4(5m - 15 - m)$

$= -4(4m - 15)$

$= -16m + 60$