Multiplying Binomials

Binomials - A polynomial with only two terms.

$x+4$ $\quad 3x^2-10$ $\quad \frac{1}{2}x^2-1$

To multiply binomials, use the FOIL method.

First
Outer
Inner
Last

$(x+4)(x+2)$

F O I L

$x^2+2x+4x+8$

x^2+6x+8

1. Find each product.

a) $(x-4)(x-10)$

F O I L

$x^2-10x-4x+40$

$x^2-14x+40$

b) $(x^2-8)(2x^2+7)$

F O I L

$2x^4+7x^2-16x^2-56$

$2x^4-9x^2-56$

c) $(x-8)(x+8)$

F O I L

$x^2+8x-8x-64$

x^2-64

d) $(4x^2-1)(-x-12)$

F O I L

$-4x^3-48x^2+1x+12$

e) $\left(x-\frac{1}{2}\right)\left(x+\frac{1}{4}\right)$

F O I L

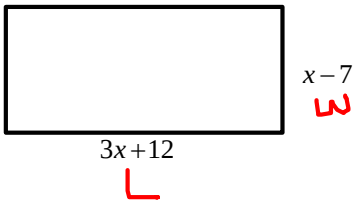
$x^2+\frac{1}{4}x-\frac{1}{2}x-\frac{1}{8}$

$x^2-\frac{1}{4}x-\frac{1}{8}$

LCD = 4

$\frac{1}{4}-\frac{1}{2}\cdot\frac{2}{2}=\frac{1}{4}-\frac{2}{4}=-\frac{1}{4}$

2. Write an expression for the area of the rectangle.



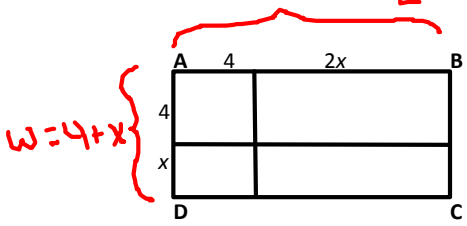
$A = L \times W$

$A = (3x+12)(x-7)$

$A = 3x^2 - 21x + 12x - 84$

$\boxed{A = 3x^2 - 9x - 84}$

3. Find the area of Rectangle ABCD.



$L = 4 + 2x$

$W = 4 + x$

$A = L \times W$

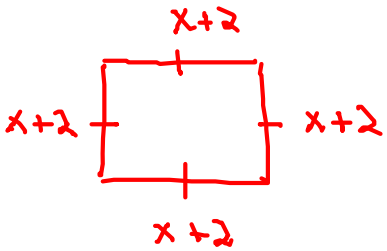
$A = (4+2x)(4+x)$

$A = 16 + 4x + 8x + 2x^2$

$A = 16 + 12x + 2x^2$

$\boxed{A = 2x^2 + 12x + 16}$

4. Find the area of a square if each side is $x + 2$.



$A = \text{side} \times \text{side}$

$A = (x+2)(x+2)$

$A = x^2 + 2x + 2x + 4$

$\boxed{A = x^2 + 4x + 4}$