B: Multiplying Polynomials by Monomials

$(2x)(5x+2)$
Mono x Bi

$(2x)(3x^2+2x+1)$
Mono x Tri

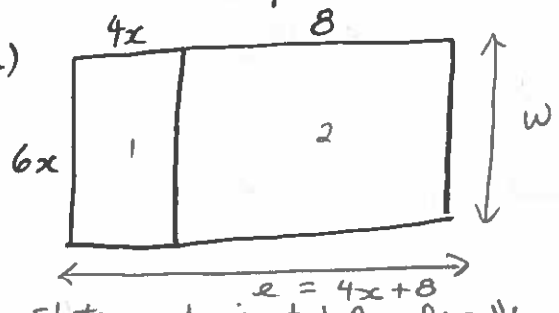
$(2x)(4x^3+3x^2+2x+1)$
Mono x Poly

I: Using Area Model

Examples:

1. What multiplication statement is represented by the model?

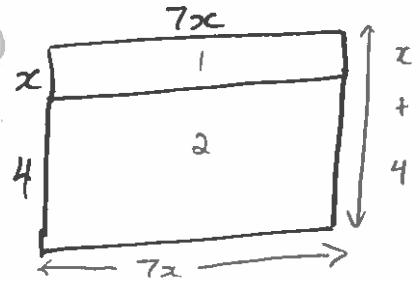
a)



Statement is total length by total width (Total Area).

$(6x)(4x+8)$

b)



$= (7x)(x+4)$

2. Determine the product of the above models.

Product is total area.

a) $A_1 = (6x)(4x)$
$= 24x^2$

$A_2 = (8)(6x)$
$= 48x$

TOTAL $= 24x^2 + 48x$

* collect like terms if possible.

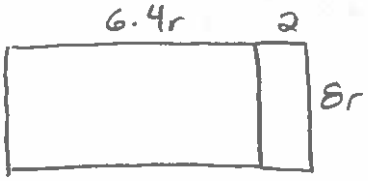
b) $A_1 = (x)(7x)$
$= 7x^2$

$A_2 = (4)(7x)$
$= 28x$

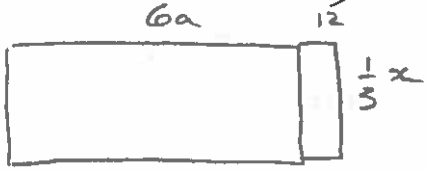
TOTAL $= 7x^2 + 28x$

3. Expand the expression using an area model.

a) $(6.4r + 2)(8r)$



b) $\left(\frac{1}{3}x\right)(6a + 12)$



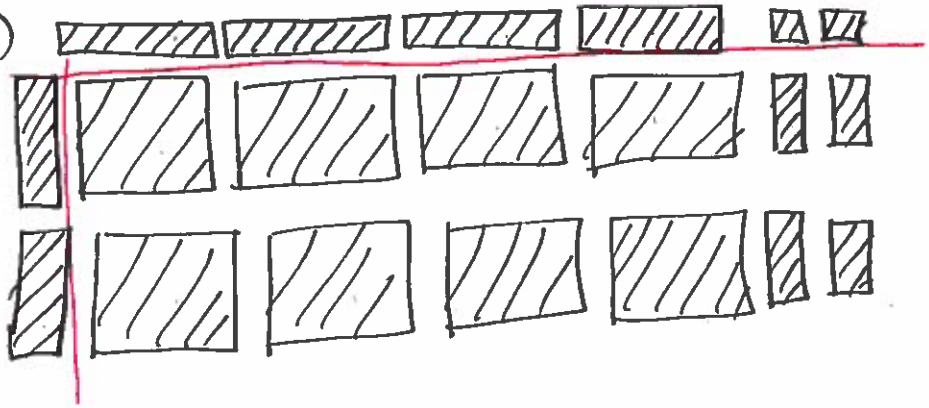
II: Using Algebra Tiles

Same as previous multiplication [middle tiles are product]

Examples

1. What multiplication statement is represented by the tiles?

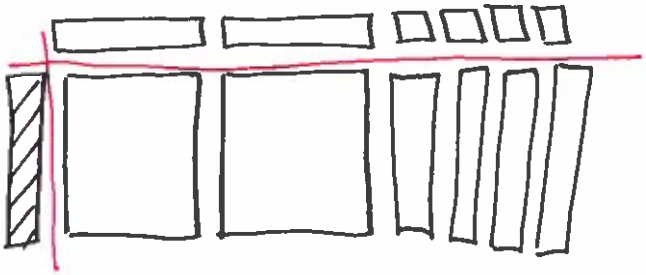
a)



column x row = product

$(2x)(4x + 2) = 8x^2 + 4x$

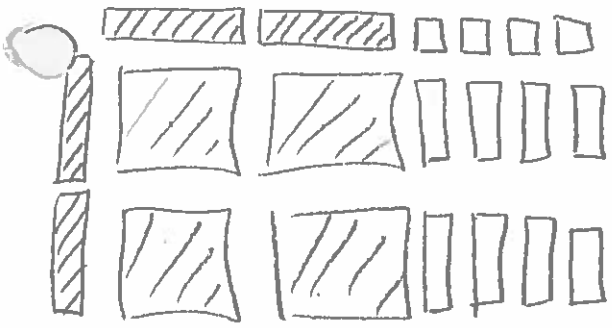
b)



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

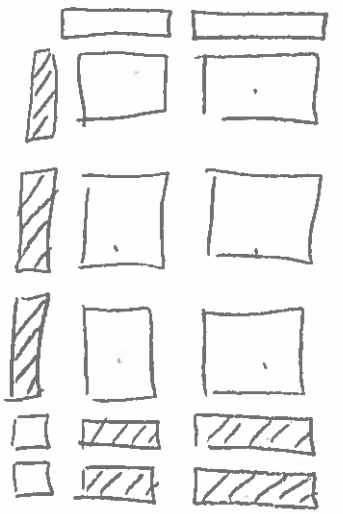
2. Expand each expression, using tiles.

a) $(2x-4)(2x)$



$= 4x^2 - 8x$

b) $(-2x)(3x-2)$



$= -6x^2 + 4x$

Assignment Pg. 269 #4-11,