

Section 5.4: Subtracting Polynomials

Method 1: Using Algebra Tiles

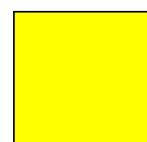
- (1) Model the first polynomial
- (2) Take away tiles based on the second polynomial.
- (3) If there are not enough tiles to take away create zero pairs.
- (4) Remove tiles and state the polynomial of the remaining tiles.

Example #1: Subtract: $(3x^2 - 4x) - (2x^2 - 6x)$

Answer:

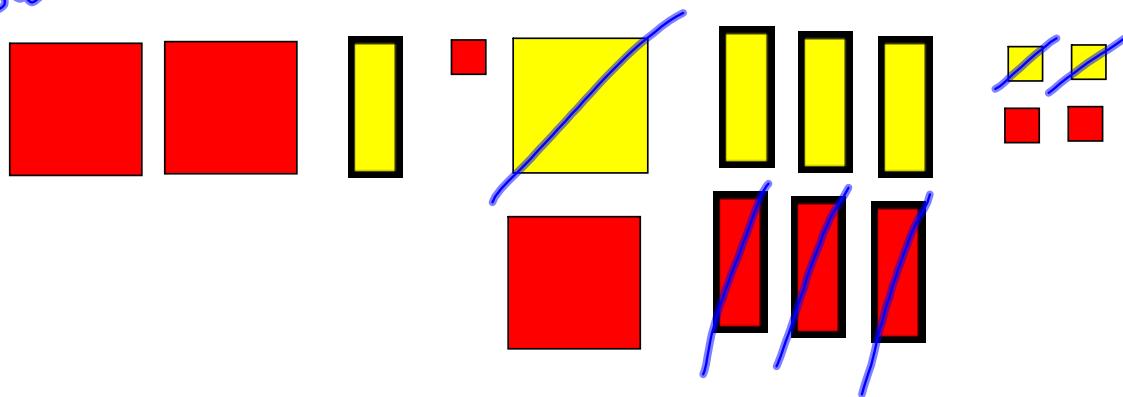
$$\begin{array}{r} 3x^2 \\ - 4x \\ \hline \end{array}$$

The diagram shows algebra tiles representing the expression $3x^2 - 4x$. Above the line, there are three yellow squares (representing $3x^2$) and four red rectangles (representing $-4x$). Below the line, there are two yellow squares, indicating the result of the subtraction.



Ex #2: Subtract the following polynomials:
 $(-2x^2 + x - 1) - (x^2 - 3x + 2)$

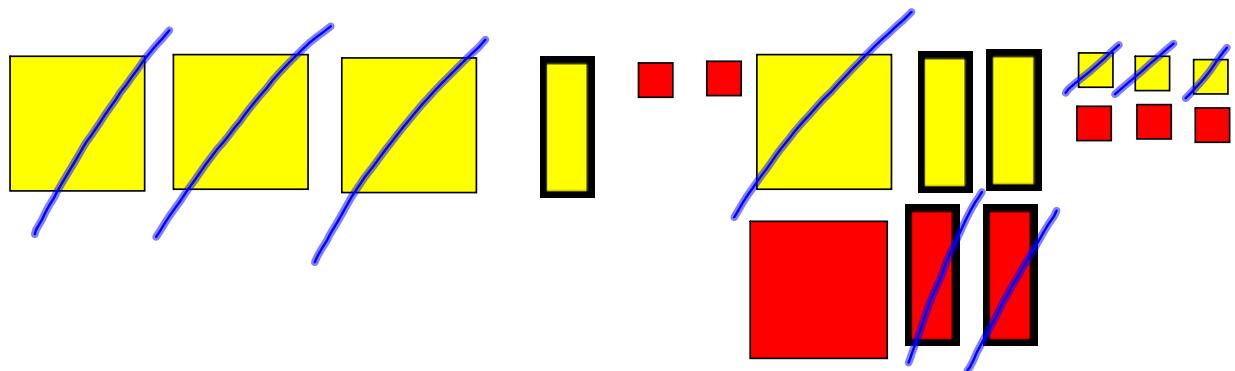
Answer:



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

Ex #3: Determine the difference:

$$(3c^2 + c - 2) - (4c^2 - 2c + 3)$$



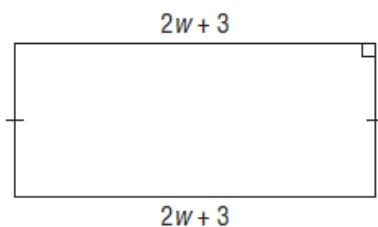
$$\text{Ans}) -c^2 + 3c - 5$$

Method 2: Subtracting without tiles:

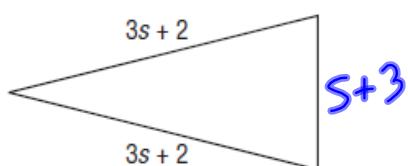
- (1) Write the first polynomial as is.
- (2) The subtraction sign will change to addition, and all signs of your second polynomial will also change.
- (3) Follow the addition rules.

13. The perimeter of each polygon is given.
Determine each unknown length.

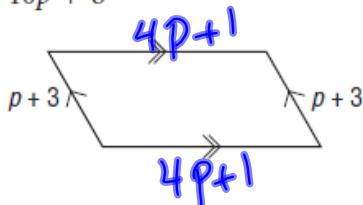
a) $6w + 14$



b) $7s + 7$



c) $10p + 8$



$$\left. \begin{array}{l}
 \text{(A)} (2w+3)+(2w+3) \\
 = 4w+6 \\
 \therefore (6w+14)-(4w+6) \\
 = (6w+14)+(-4w-6) \\
 = (6w-4w)+(14-6) \\
 = 2w+8
 \end{array} \right\} \text{Divide by 2}$$

\therefore Each unknown side is $w+4$