

## 15.3 Subtracting Polynomials

Recall that you can subtract by adding the opposite.

### Example 1

Find  $(8x + 6) - (5x + 5)$ .

$$\boxed{8x} + \boxed{6} + \boxed{-5x} + \boxed{-5} \quad \boxed{3x + 1}$$

### Example 2

Find  $(3x + 4y) - (2x + y)$ .

$$\boxed{3x} + \boxed{4y} + \boxed{-2x} + \boxed{-y} \quad \boxed{1x + 3y} \text{ or } \boxed{x + 3y}$$

### Example 3

Find  $(-7m^2 - 5m + 1) - (-3m^2 - 4m + 9)$ .

$$\boxed{-7m^2} - \boxed{5m} + \boxed{1} + \boxed{3m^2} + \boxed{4m} - \boxed{9}$$

$$\boxed{-4m^2 - m - 8}$$

### Example 4

Find  $(14p^2 + 7p - 11) - (-3p^2 - 8p + 5)$ .

$$\boxed{14p^2} + \boxed{7p} - \boxed{11} + \boxed{3p^2} + \boxed{8p} - \boxed{5}$$

$$\boxed{17p^2 + 15p - 16}$$

### 15.3 Subtracting Polynomials

#### Example 5

Find  $(6k^2 - 3k + 2) - (2k^2 - 4k)$ .

$$\boxed{6k^2} - \boxed{3k} + \boxed{2} + \boxed{-2k^2} + \boxed{4k}$$
$$\boxed{4k^2 + k + 2}$$

#### Example 6

Find  $(8x^2 - 7xy - 2y^2) - (3x^2 + xy - 5y^2)$ .

$$\boxed{8x^2} - \boxed{7xy} - \boxed{2y^2} + \boxed{-3x^2} - \boxed{-xy} + \boxed{5y^2}$$
$$\boxed{5x^2 - 8xy + 3y^2}$$

#### Example 7

$$\begin{array}{r} 3d^2 + 7d + 8 \\ (+) 2d^2 + 4d + 3 \\ \hline \end{array}$$

$$\boxed{d^2 + 11d + 5}$$

#### Example 8

$$\begin{array}{r} 7p^2q^2 - 8pq + 9 \\ (+) -p^2q^2 + 9pq + 10 \\ \hline \end{array}$$

$$\boxed{6p^2q^2 + pq + 19}$$