8.1 Part 2 Adding and Subtracting Polynomials

Remember, you can only add and subtract like terms.

Example 1
Find $(3y^2 + 5y - 6) + (7y^2 - 9)$.

$$10y^2 + 5y - 15$$

Example 2
Find $(-5g^2 - 4g - 2) + (9g - 10)$.
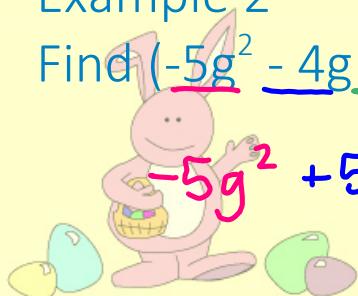
$$-5g^2 + 5g - 12$$

Example 3

$$
\begin{array}{r}
8k^2 + 6k - 11 \\
(+) \; -2k^2 \quad\quad - 13 \\
\hline
6k^2 + 6k - 24
\end{array}
$$

Example 4

$$
\begin{array}{r}
-5w^2 - 7w + 12 \\
(+) \; -w^2 + 16w - 8 \\
\hline
-6w^2 + 9w + 4
\end{array}
$$
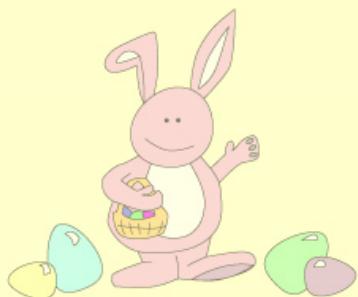
Recall that you can subtract by adding the opposite.

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

$$-4m^2 - m - 8$$

Example 6
Find $(14p^2 + 7p - 11) + (+3p^2 + 8p - 5)$.
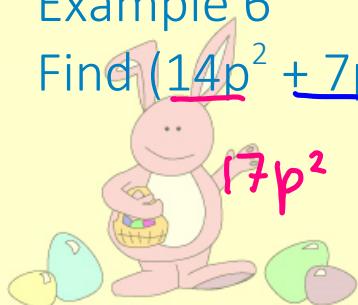
$$17p^2 + 15p - 16$$

Example 7

$$3d^2 + 7d + 8$$
$$(+) \; -2d^2 + 4d - 3$$
$$\overline{}$$
$$d^2 + 11d + 5$$

Example 8

$$7p^2q^2 - 8pq + 9$$
$$(+) \; -p^2q^2 + 9pq + 10$$
$$\overline{}$$
$$6p^2q^2 + pq + 19$$

Example 9

Find the measure of the third side of the triangle below. P is the measure of the perimeter.

$3x^2 + 2x - 1$

S
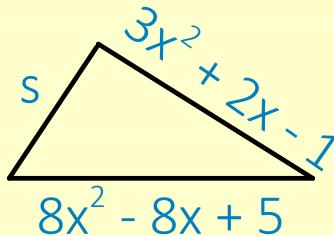
$8x^2 - 8x + 5$

$P = 3x^2 + 2x - 1$

side 1 + side 2 + side 3 = perimeter

$(8x^2 - 8x + 5) + (3x^2 + 2x - 1) + S = 3x^2 + 2x - 1$

$11x^2 - 6x + 4 + S = 3x^2 + 2x - 1$
$-11x^2 + 6x - 4 \qquad -11x^2 + 6x - 4$

$\boxed{S = -8x^2 + 8x - 5}$

Example 10

Find the measure of the third side of the triangle below. P is the measure of the perimeter.

$x^2 + 3x - 5$

S
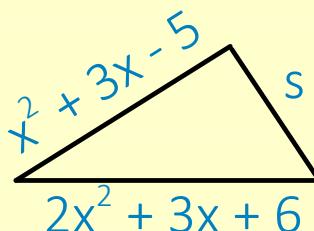
$2x^2 + 3x + 6$

$P = 4x^2 + 5x + 5$

side 1 + side 2 + side 3 = perimeter

$(x^2 + 3x - 5) + (2x^2 + 3x + 6) + S = 4x^2 + 5x + 5$

$3x^2 + 6x + 1 + S = 4x^2 + 5x + 5$
$-3x^2 - 6x - 1 \qquad -3x^2 - 6x - 1$

$\boxed{S = x^2 - x + 4}$