Adding Polynomials

Key

1. Determine each sum.

a)
$$\begin{array}{r} 5a^2 + 2a + 1 \\ +\ a^2 + 6a + 5 \\ \hline 6a^2+8a+6 \end{array}$$

b)
$$\begin{array}{r} 5n^2 - 6n + 5 \\ +\ 2n^2 + 8n - 3 \\ \hline 7n^2+2n+2 \end{array}$$

c)
$$\begin{array}{r} 4y^2 - 5y - 3 \\ +\ 8y^2 - 12y + 4 \\ \hline 12y^2-17y+1 \end{array}$$

d)
$$\begin{array}{r} -3x^2 + 4x - 6 \\ +\ 4x^2 - 4x + 6 \\ \hline x^2 \quad (+0) \end{array}$$

e)
$$\begin{array}{r} b^2 - 4b - 10 \\ +\ 2b^2 - 4b + 10 \\ \hline 3b^2-8b \end{array}$$

f)
$$\begin{array}{r} 2r^2 + 3r - 5 \\ +\ -2r^2 + 6r + 4 \\ \hline 9r-1 \end{array}$$

g)
$$\begin{array}{r} 8m^2 + 6m - 12 \\ +\ 5m - 11 \\ \hline 8m^2+11m-23 \end{array}$$

h)
$$\begin{array}{r} 2s^2 + 3s - 1 \\ +\ 4s^2 + 10 \\ \hline 6s^2+3s+9 \end{array}$$

i)
$$\begin{array}{r} 4c^2 - 10c + 8 \\ +\ -4c^2 + 10c - 8 \\ \hline 0 \end{array}$$

2. Determine the sum of these polynomials.

a) $(3a^2 + 2a + 1) + (a^2 - 3a + 5)$

$4a^2-a+6$

b) $(-2r^2 + r - 1) + (4r^2 - r + 5)$

$2r^2+4$

c) $(4b^2 - 6b - 1) + (-5b^2 + 6)$

$-b^2-6b+5$

d) $(6c - 5) + (3c^2 + 2c)$

$3c^2+8c-5$

e) $(x^2 - 2x + 6) + (-2x^2 - 3x - 10)$

$-x^2-5x-4$

f) $(7y^2 - 8y) + (5y - 11)$

$7y^2-3y-11$

g) $(3n^2 - 12) + (4n^2 + 6n + 10)$

$7n^2+6n-2$

h) $(-5a^2 - a + 1) + (2a^2 + a - 5)$

$-3a^2-4$

i) $(2m^2 - 5m) + (-5m^2 + 3m - 1)$

$-3m^2-2m-1$

j) $(-5x^2 + 6x - 1) + (3x^2 - 2x - 5)$

$-2x^2+4x-6$

Subtracting Polynomials

1. Subtract and simplify like terms, if possible.

a) $9x - 6x$

$3x$

b) $15y^2 - 10y^2$

$5y^2$

c) $2b^3 - 3b^3$

$-1b^3$

d) $15c - (2c + 1)$

$15c - 2c - 1$

$13c - 1$

e) $4a^2 - (4 - 2a^2)$

$4a^2 - 4 + 2a^2$

$6a^2 - 4$

f) $3c^3 - (2c^2 - 5)$

$3c^3 - 2c^2 + 5$

2. Simplify each expression by subtracting.

a) $(5a + 7) - (3a + 2)$

$5a + 7 - 3a - 2$

$2a + 5$

b) $(2x^2 + 3x) - (x^2 - 6x)$

$2x^2 + 3x - x^2 + 6x$

$x^2 + 9x$

c) $5n^2 - (-3n^2 + 7)$

$5n^2 + 3n^2 - 7$

$8n^2 - 7$

d) $10 - (2x - 12)$

$10 - 2x + 12$

$-2x + 22$

e) $(2y^2 + 3y - 1) - (4y^2 - 2y + 3)$

$2y^2 + 3y - 1 - 4y^2 + 2y - 3$

$-2y^2 + 5y - 4$

f) $(2a^2 + 5a) - (7 - 4a)$

$2a^2 + 5a - 7 + 4a$

$2a^2 + 9a - 7$

g) $(b^2 + 7) - (8 + 6b - 5b^2)$

$b^2 + 7 - 8 - 6b + 5b^2$

$6b^2 - 6b - 1$

h) $(h^2 - h - 6) - (5h + 12)$

$h^2 - h - 6 - 5h - 12$

$h^2 - 6h - 18$