

Exercise A

$$\begin{aligned}1) & 3x - 2(5x - 4) + 2(3x - 5) \\&= 3x - 10x + 8 + 6x - 10 \\&= -x - 2\end{aligned}$$

$$\begin{aligned}2) & 2y + 5(3y - 1) - 7(y + 3) \\&= 2y + 15y - 5 - 7y - 21 \\&= 10y - 26\end{aligned}$$

$$\begin{aligned}3) & 8 - 2x(4x + 3) - 3(5x - 2) \\&= 8 - 8x^2 - 6x - 15x + 6 \\&= -8x^2 - 21x + 14\end{aligned}$$

$$\begin{aligned}4) & 6x^2 - 2x + 5(3x - 2) - (6x - 3) \\&= 6x^2 - 2x + 15x - 10 - 6x + 3 \\&= 6x^2 + 7x - 7\end{aligned}$$

$$\begin{aligned}5) & 4x + 3x(2x + 3) - (5x^2 - x + 8) \\&= 4x + 6x^2 + 9x - 5x^2 + x - 8 \\&= x^2 + 14x - 8\end{aligned}$$

$$\begin{aligned}6) & -2y^2 - 3y(1 - 4y) - (6y - 4) \\&= -2y^2 - 3y + 12y^2 - 6y + 4 \\&= 10y^2 - 9y + 4\end{aligned}$$

$$\begin{aligned}7) & 3x^2 - 4x(2x - 5) + 8x - 3 \\&= 3x^2 - 8x^2 + 20x + 8x - 3 \\&= -5x^2 + 28x - 3\end{aligned}$$

$$\begin{aligned}8) & 10 + 2x - 3x(4x - 1) - 7x^2 + 5x - 3 \\&= 10 + 2x - 12x^2 + 3x - 7x^2 + 5x - 3 \\&= -19x^2 + 10x + 7\end{aligned}$$

$$\begin{aligned}9) & -(4a^2 - 3a + 1) + 2a(a - 3) + 5a^2 - 2a - 3 \\&= -4a^2 + 3a - 1 + 2a^2 - 6a + 5a^2 - 2a - 3 \\&= 3a^2 - 5a - 4\end{aligned}$$

$$\begin{aligned}10) & 2y(4y - 3) - 3y(5y + 2) - (4y^2 - 3y + 2) \\&= 8y^2 - 6y - 15y^2 - 6y - 4y^2 + 3y - 2 \\&= -11y^2 - 9y - 2\end{aligned}$$

$$\begin{aligned}11) & 4x(5 - x) + 2x - 3(4x + 5) - 10x \\&= 20x - 4x^2 + 2x - 12x - 15 - 10x \\&= -4x^2 + 0x - 15 \\&= -4x^2 - 15\end{aligned}$$

$$\begin{aligned}
 &12) 12 - 3(2x - 5) + 4x - 2x(3x - 2) + 8 \\
 &= 12 - 6x + 15 + 4x - 6x^2 + 4x + 8 \\
 &= -6x^2 + 2x + 35
 \end{aligned}$$

Exercise B

1.

$$\begin{aligned}
 \text{a)} & (5a + 7)(2a - 6) \\
 &= 10a^2 - 30a + 14a - 42 \\
 &= 10a^2 - 16a - 42
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} & (6x - 7)(x + 2) \\
 &= 6x^2 + 12x - 7x - 14 \\
 &= 6x^2 + 5x - 14
 \end{aligned}$$

$$\begin{aligned}
 \text{c)} & (x - 4)(3x - 7) \\
 &= 3x^2 - 7x - 12x + 28 \\
 &= 3x^2 - 19x + 28
 \end{aligned}$$

$$\begin{aligned}
 \text{d)} & (4c + 8)(3c - 8) \\
 &= 12c^2 - 32c + 24c - 64 \\
 &= 12c^2 - 8c - 64
 \end{aligned}$$

$$\begin{aligned}
 \text{e)} & (6y - 4)(5y + 7) \\
 &= 30y^2 + 42y - 20y - 28 \\
 &= 30y^2 + 22y - 28
 \end{aligned}$$

$$\begin{aligned}
 \text{f)} & (3a - 8)(5a - 9) \\
 &= 15a^2 - 27a - 40a + 72 \\
 &= 15a^2 - 67a + 72
 \end{aligned}$$

2.

$$\begin{aligned}
 \text{a)} & (c + 1)(4c - 2)(c - 5) \\
 &= (4c^2 - 2c + 4c - 2)(c - 5) \\
 &= (4c^2 + 2c - 2)(c - 5) \\
 &= 4c^3 - 20c^2 + 2c^2 - 10c - 2c + 10 \\
 &= 4c^3 - 18c^2 - 12c + 10
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} & (a - 6)(2a + 5)(a - 5) \\
 &= (2a^2 + 5a - 12a - 30)(a - 5) \\
 &= (2a^2 - 7a - 30)(a - 5) \\
 &= 2a^3 - 10a^2 - 7a^2 + 35a - 30a + 150 \\
 &= 2a^3 - 17a^2 + 5a + 150
 \end{aligned}$$

$$\begin{aligned}
 \text{c) } & (2b - 6)(b - 3)(b + 4) \\
 &= (2b^2 - 6b - 6b + 18)(b + 4) \\
 &= (2b^2 - 12b + 18)(b + 4) \\
 &= 2b^3 + 8b^2 - 12b^2 - 48b + 18b + 72 \\
 &= 2b^3 - 4b^2 - 30b + 72
 \end{aligned}$$

$$\begin{aligned}
 \text{d) } & (y + 6)(y - 5)(5y + 1) \\
 &= (y^2 - 5y + 6y - 30)(5y + 1) \\
 &= (y^2 + y - 30)(5y + 1) \\
 &= 5y^3 + y^2 + 5y^2 + y - 150y - 30 \\
 &= 5y^3 + 6y^2 - 149y - 30
 \end{aligned}$$

$$\begin{aligned}
 \text{e) } & (y + 6)(y + 1)(5y + 4) \\
 &= (y^2 + y + 6y + 6)(5y + 4) \\
 &= (y^2 + 7y + 6)(5y + 4) \\
 &= 5y^3 + 4y^2 + 35y^2 + 28y + 30y + 24 \\
 &= 5y^3 + 39y^2 + 58y + 24
 \end{aligned}$$
