

Simplifying Expressions



Simplify each expression using the three property

$$1) 3(4x - 3y + 10) + 4(3y + 6)$$

$$\begin{aligned} &= 12x - 9y + 30 + 12y + 24 \\ &= 12x - 9y + 12y + 30 + 24 \\ &= 12x + 3y + 54 \end{aligned}$$

$$6) 4(6d - 3e + 4f)$$

$$\begin{aligned} &= 4 \times 6d + 4 \times -3e + 4 \times 4f \\ &= 24d - 12e + 16f \end{aligned}$$

$$2) 2(23l + 5) + 6l$$

$$\begin{aligned} &= 2(115l) + 6l \\ &= 230l + 6l \\ &= 236l \end{aligned}$$

$$7) 2x + (7y + 10xy + 3y) + 2xy$$

$$\begin{aligned} &= 2x + 7y + 10xy + 3y + 2xy \\ &= 2x + 7y + 3y + 10xy + 2xy \\ &= 2x + 10y + 12xy \end{aligned}$$

$$3) (4p + 10q) - (2p - 6q)$$

$$\begin{aligned} &= 4p + 10q - 2p + 6q \\ &= 4p - 2p + 10q + 6q \\ &= 2p + 16q \end{aligned}$$

$$8) -2(6a - 3b) + 3(2b - 4a)$$

$$\begin{aligned} &= -2 \times 6a - 2 \times -3b + 3 \times 2b + 3 \times -4a \\ &= -12a + 6b + 6b - 12a \\ &= -12a - 12a + 6b + 6b \\ &= -24a + 12b \end{aligned}$$

$$4) 5(6d - 6 - 10d)$$

$$\begin{aligned} &= 5(6d - 10d - 6) \\ &= 5(-4d - 6) \\ &= -20d - 30 \end{aligned}$$

$$9) (4u - 9v) - (2u + 5v)$$

$$\begin{aligned} &= 4u - 9v - 2u - 5v \\ &= 2u - 14v \end{aligned}$$

$$5) (p + q) - (p - r) + (q - r)$$

$$\begin{aligned} &= p + q - p + r + q - r \\ &= p - p + q + q + r - r \\ &= 2q \end{aligned}$$

$$10) 6m - 9s + 25m - 6m - 10s$$

$$\begin{aligned} &= 6m - 6m - 9s - 10s + 25m \\ &= -19s + 25m \end{aligned}$$

$$11) -2(2s - 6t) + 3(4t - 3s)$$

$$\begin{aligned} &= -2 \times 2s - 2 \times -6t + 3 \times 4t + 3 \times -3s \\ &= -4s + 12t + 12t - 9s \\ &= -4s - 9s + 12t + 12t \\ &= -13s + 24t \end{aligned}$$

