

10. If  $a=3$ , find the value of  $a^2$  and  $2^a$ .

$$a^2 = 3^2 = 3 \times 3 = \underline{9}$$

$$2^a = 2^3 = 2 \times 2 \times 2 = \underline{8}$$

11. If  $m=2$ , find the difference between the values of  $4m^3$  and  $3m^4$ .

$$4m^3 = 4 \times 2^3 = 4 \times 8 = 32$$

$$3m^4 = 3 \times 2^4 = 3 \times 16 = 48$$

$$48 - 32 = \underline{16}$$

### EXERCISE 20(B)

1. Evaluate:

(i)  $(23 - 15) + 4$

$$= 8 + 4$$

$$= \underline{12}$$

(ii)  $5x + (3x + 7x)$

$$= 5x + 10x$$

$$= \underline{15x}$$

(iii)  $6m - (4m - m)$

$$= 6m - 3m$$

$$= \underline{3m}$$

(iv)  $(9a - 3a) + 4a$

$$= 3a + 4a$$

$$= \underline{7a}$$

$$\begin{aligned} \text{(v)} \quad 35b - (10b + 9b) &= 35b - 19b \\ &= \underline{28b} \end{aligned} \qquad \begin{aligned} \text{(vi)} \quad (3y + 8y) - 5y &= 11y - 5y \\ &= \underline{6y} \end{aligned}$$

$$\begin{aligned} \text{2. (i)} \quad 12x - (5x + 2x) &= 12x - 7x \\ &= \underline{5x} \end{aligned} \qquad \begin{aligned} \text{(ii)} \quad 10m + (4n - 3n) - 5n &= 10m + n - 5n \\ &= \underline{10m - 4n} \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad (15b - 6b) - (8b + 9b) &= 9b - 17b \\ &= \underline{-3b} \end{aligned} \qquad \begin{aligned} \text{(iv)} \quad -(-4a - 8a) &= +4a + 8a \\ &= \underline{12a} \end{aligned}$$

$$\begin{aligned} \text{(v)} \quad x - (x - y) - (-x + y) &= x - x + y + x - y \\ &= x - x + x + y - y \\ &= \underline{x} \end{aligned} \qquad \begin{aligned} \text{(vi)} \quad p + (-q - r - s) - (p - q - r) &= p - q - r - s - p + q + r \\ &= p - p - q + q - r + r - s \\ &= \underline{-s} \end{aligned}$$

(vii)  $(a+b) - (c+d) - (e-f)$

$= \underline{a+b-c-d-e+f}$

(viii)  $3x + (8x - 5x) - (7x - x)$

$= 3x + 8x - 5x - 7x + x$

$= 12x - 12x$

$= \underline{0}$

(ix)  $a - (a - b - c)$

$= a - a + b + c$

$= \underline{b+c}$

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

$= (6a^2 + 2a^2 - a^2 - a^2 + b^2)$

$= \underline{6a^2 + b^2}$

(xi)  $2m - (3m + 2n - 6n)$

$= 2m - 3m - 2n + 6n$

$= \underline{-m + 4n}$

(xii)  $-m - n - (-m) - m$

$= -m - n + m - m$

$= \underline{-m - n}$

(xiii)  $x + y - (x + y - x) - y + x$

$= x + y - x - y + x$

$= x - x + x + y - y$

$= \underline{x}$

(xiv)  $25y - (5x - 10y + 6x - 3y)$

$= 25y - 5x + 10y - 6x + 3y$

$= 25y + 10y + 3y - 5x - 6x$

$= \underline{38y - 11x}$

$$(x) \quad (xv) \quad 3x + (2x - x + 2)$$

$$= 3x + 2x - x + 2$$

$$= \underline{4x + 2}$$

$$(xvi) \quad a - (2a - 4a + 3a)$$

$$= a - 2a + 4a - 3a$$

$$= a - (2a - a)$$

$$= a - 2a + a$$

$$(xvii) \quad 5x^2 - (3x - x^2 - 4) = 0$$

$$(xvii) \quad 5x^2 - (3x - x^2 - 4)$$

$$= 5x^2 - 3x + x^2 + 4$$

$$= \underline{6x^2 - 3x + 4}$$

$$(xviii) \quad -(y - x) - (x + y - 2x + y)$$

$$= -(y - x) - (x + y - 2x + y)$$

$$= -y + x - x - y + 2x - y$$

$$= -y - y - y + x - x + 2x$$

$$= \underline{-3y + 2x}$$

$$3. \quad (i) \quad x - (y - z) + x + (y - z) + y - (z + x)$$

$$= x - y + z + x + y - z + y - z - x$$

$$= x + x - x - y + y + y + z - z - z$$

$$= \underline{x + y - z}$$

(ii)  $x - [y + \{x - (y + x)\}]$

$= x - [y + \{x - y - x\}]$

$= x - [y + x - y - x]$

$= x - y - x + y + x$

$= x - x + x - y + y$

$= \underline{x}$

(iii)  $4x + 3(2x - 5y)$

$= 4x + 3 \times 2x - 5y$

$= 4x + 6x - 5y$

$= \underline{10x - 5y}$

(iv)  $2(3a - b) - 5(a - 3b)$

$= 2 \times 3a - b - 5a - 3b$

$= 6a - b - 5a - 3b$

$= 6a - 5a - b - 3b$

$= \underline{a - 4b}$

(v)  $p + 2(q - r + p)$

$= p + 2(q - r + p)$

$= p + 2 \times q - r + p$

$= p + p + 2q - r$

$= \underline{2p + 2q - r}$

(vi)  $a - [-\{- (a - b - c)\}]$

$= a - [-\{- (a - b - c)\}]$

$= a - [-\{- a + b + c\}]$

$= a - [a - b - c]$

$= a - a + b + c$

$= \underline{b + c}$

(vii)  $3x - [5y - \{6y + 2(10y - x)\}]$

$= 3x - [5y - \{6y + 2 \times 10y - x\}]$

$= 3x - [5y - 6y - 20y + x]$

$= 3x - 5y + 6y + 20y - x$

$= 3x - x - 5y + 6y + 20y$

$= \underline{2x + 21y}$

$$(viii) 5\{a^2 - a(a - a - 2)\}$$

$$= 5\{a^2 - a(a - a + 2)\}$$

$$= 5\{a^2 - a \times a - a + 2\}$$

$$= 5a^2 - a \times a - a + 2$$

$$= 5a^2 - a^2 - a + 2$$

$$= \underline{4a^2 - a + 2}$$