

## Workout

Question 1: Factorise the following expressions

- |                 |                 |                  |                       |
|-----------------|-----------------|------------------|-----------------------|
| (a) $4x + 6$    | (b) $15x + 20$  | (c) $9y - 12$    | (d) $5x + 15$         |
| (e) $6x - 3$    | (f) $4x + 8$    | (g) $5y - 25$    | (h) $8w + 24$         |
| (i) $10y + 15$  | (j) $14w + 21$  | (k) $20y - 30$   | (l) $27x + 18$        |
| (m) $6 - 4x$    | (n) $9 + 12y$   | (o) $45 + 60x$   | (p) $16y - 32$        |
| (q) $22a + 55$  | (r) $100 - 40y$ | (s) $6x + 9y$    | (t) $4w - 2a$         |
| (u) $25y - 35z$ | (v) $8x^2 + 20$ | (w) $30y^3 - 15$ | (x) $42y + 28x - 56c$ |

Question 2: Factorise the following expressions

- |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|
| (a) $x^2 + 7x$    | (b) $x^2 - 3x$    | (c) $y^2 + y$     | (d) $w^2 + 9w$    |
| (e) $x^2 - 7x$    | (f) $4w^2 + 10w$  | (g) $6x^2 - 8x$   | (h) $9y^2 - 6y$   |
| (i) $10c + c^2$   | (j) $5g - g^2$    | (k) $14x^2 + 35x$ | (l) $40x^2 - 50x$ |
| (m) $12x^2 + 18x$ | (n) $24x^2 - 18x$ | (o) $45y^2 + 60y$ | (p) $7w^2 + 2w$   |

Question 3: Factorise the following expressions

- |                    |                      |                    |                           |
|--------------------|----------------------|--------------------|---------------------------|
| (a) $x^2 + xy$     | (b) $a^2 - ab$       | (c) $xy + xz$      | (d) $ab + ac - ad$        |
| (e) $6c^2 - 4cd$   | (f) $10x^2 + 15xy$   | (g) $12ab + 18bc$  | (h) $8xy + 4y^2$          |
| (e) $7de - 9ce$    | (f) $24ab^2 + 28ac$  | (g) $30xy + 35xyz$ | (h) $4abc - 6a$           |
| (i) $8cdf + 10cde$ | (j) $7w^2 + 6w + wy$ | (k) $8ab^2 - 10ab$ | (l) $4xy^2 + 6xy + 2x^2y$ |
| (m) $6mn - 7m^2n$  | (n) $11g^2h + 22h^2$ |                    |                           |

Question 4: Factorise the following expressions

- |                     |                   |                    |                     |
|---------------------|-------------------|--------------------|---------------------|
| (a) $x^3 + 2x^2$    | (b) $5x^3 - x^2$  | (c) $8c^3 + 12c$   | (d) $10w^2 - 15w^3$ |
| (e) $32y^3 + 24y^2$ | (f) $12x^4 + 15x$ | (g) $4a^5 - 12a^2$ | (h) $8w^9 + w^7$    |

## Apply

Question 1: Explain why  $8x + 3y$  cannot be factorised.

Question 2: James has factorised an expression correctly.  
His answer is  $2(7y - 3)$ .  
What was the expression that he factorised?

Question 3: Alexandra is trying to factorise fully  $15y + 30$ .  
Rebecca says the answer is  $3(5y + 10)$   
Victoria says the answer is  $5(3y + 6)$   
Alexandra says both Rebecca and Victoria are incorrect, why?

Question 4: Can you spot any mistakes?

Factorise

$$w^2 - 5w$$

$$\frac{w(w + 5)}{\dots\dots\dots(1)}$$

Question 5: Can you spot any mistakes?

Factorise completely

$$24x^2 + 20x$$

$$\frac{4(6x^2 + 5x)}{\dots\dots\dots(2)}$$

Question 6: Can you spot any mistakes?

Factorise completely

$$20a^2c + 30ac$$

$$\frac{5ac(4a^2 + 6)}{\dots\dots\dots(2)}$$