

**TAKE 10 ... FACTORISATION (ALSO INCLUDES INDICES & EXPAND & SIMPLIFY)**

**Q1.** (a) Factorise  $3t + 12$

**(1)**

(b) (i) Expand and simplify  $7(2x + 1) + 6(x + 3)$

(ii) Show that when  $x$  is a whole number

$7(2x + 1) + 6(x + 3)$  is always a multiple of 5

**Q2.** (a) Simplify fully  $\frac{n^7 \times n^3}{n^6}$

**(3)**

(b) Expand and simplify  $x(x - 2) + 2x(x + 3)$

**(2)**

(c) Factorise  $5y - 15$

**(2)**

(d) Factorise fully  $18ab + 27ab^2$

**(1)**

**Q3.**(a) Simplify  $2e - 8f + 6e + 3f$

**(2)**

(b) Factorise  $4t + 10$

**(2)**

(c) Expand and simplify  $3 + 2(p - 1)$

**(1)**

(d) Factorise  $ax + bx + ay + by$

**(2)**

**(2)**

- Q4.** (a) Simplify  $2x^3y^5 \times 3x^2y^3$  (2)
- (b) Expand and simplify  $(2x - 3)(3x - 1)$  (2)
- (c) Factorise completely  $8x^3y^5 - 12x^4y^2$  (2)
- (d) Factorise  $2e - 4f + ex - 2fx$  (2)
- Q5.** (a) Simplify  $6g - 5h - 4g + 2h$  (2)
- (b) Factorise  $y^2 - 2y$  (1)
- (c) Simplify fully  $\frac{p^3 \times p^4}{p^2}$  (2)
- Q6.** (a) Expand  $x(x + 2)$  (1)
- (b) Expand and simplify  $3(y + 2) + 4(x - 1)$  (2)
- (c) Expand and simplify  $(2t - 3)(t + 5)$  (2)
- (d) Factorise fully  $8a^2 + 12a$  (2)
- (e) Factorise  $y^2 - y - 2$  (2)
- Q7.** (a) Factorise fully  $20w^2y + 24wy^3$  (2)

(b) Factorise  $m^2 + 3m - 40$

**Q8.** (a) Expand and simplify  $(y + 2)(y + 5)$

(2)

(b) Factorise  $e^2 + e - 12$

(2)

**Q9.** (a) Factorise  $x^2 + 7x$

(2)

(b) Factorise  $y^2 - 10y + 16$

(1)

(c) (i) Factorise  $2t^2 + 5t + 2$

(2)

(ii)  $t$  is a positive whole number. The expression  $2t^2 + 5t + 2$  can never have a value that is a prime number.  
Explain why.

**Q10.** (a) Factorise  $e^2 - 100$

(3)

(b) Factorise  $2x^2 - 7x - 15$

(1)

(c) Simplify  $\frac{(g-7)^9}{(g-7)^3}$

(2)

(1)