

10.10 Factorisation 2

1. Factorise the following expressions:

- (a) $x^2 - 3x + 2$ (b) $x^2 + 3x + 2$ (c) $x^2 - 1$
(d) $x^2 + x - 30$ (e) $x^2 + 6x + 9$ (f) $x^2 + x - 12$
(g) $x^2 - 2x - 15$ (h) $x^2 - 8x + 16$ (i) $x^2 + 10x + 21$
(j) $x^2 + 10x - 24$

2. Copy and complete the following:

- (a) $16x^2 - 25 = (4x)^2 - 5^2 = (\quad + 5)(\quad - 5)$
(b) $a^2b^2 - c^2 = (\quad)^2 - c^2 = (\quad + c)(\quad - c)$
(c) $4 - 9t^2 = 2^2 - (\quad)^2 = (2 + 3t)(\quad)$
(d) $49x^2 - 100 = (\quad)^2 - 10^2 = (\quad + 10)(\quad)$
(e) $36b^2 - 25a^2 = (6b)^2 - (\quad)^2 = (6b + \quad)(\quad)$
(f) $a^2 - \quad = (a + 3)(\quad - 3)$

3. Use the fact that $x^2 - y^2 = (x + y)(x - y)$ to find the values of the following. Do them as quickly as possible mentally without using a calculator.

- (a) $16^2 - 6^2 =$ (b) $91^2 - 9^2 =$
(c) $48^2 - 42^2 =$ (d) $2.5^2 - 1.5^2 =$
(e) $9.6^2 - 0.4^2 =$ (f) $\left(6\frac{4}{5}\right)^2 - \left(3\frac{1}{5}\right)^2 =$

4. Factorise the following expressions:

- (a) $k^2 + 13k + 22$ (b) $m^2 + 12m + 32$ (c) $x^2 + 6x + 8$
(d) $y^2 - 3y + 2$ (e) $2x^2 + 11x + 15$ (f) $3a^2 + 5a + 2$
(g) $2y^2 + 7y + 6$ (h) $n^2 - 2n + 1$ (i) $5g^2 - 11g + 2$
(j) $r^2 - 8r + 12$ (k) $6b^2 + 11b + 5$ (l) $2d^2 - 13d + 15$
(m) $p^2 - 6p - 7$ (n) $h^2 - 5h - 36$ (o) $9x^2 - 12x + 4$
(p) $3s^2 - 7s - 6$ (q) $2f^2 - 5f - 3$ (r) $e^2 - e - 2$

5. Factorise the following expressions:

- (a) $p^2 - 8pq + 15q^2$ (b) $y^2 - 2yz - 8z^2$
(c) $k^2 - 6kl + 5l^2$ (d) $m^2 - 4mn - 21n^2$
(e) $2x^2 + 5xy + 3y^2$ (f) $2x^2 + 7xy + 3y^2$

6. (a) Simplify $(2x^4y)^3$
(b) Factorise fully $2x^2 - 50y^2$

(AQA)