Radicals and Exponents

Section A

1 Simplify $q^5 \times q^4$.

2 Simplify $p^6 \div p^4$.

3 Simplify $5q^0$.

4 Simplify $(a^4)^{10}$.

5 Simplify $\dfrac{4s^7 \times 6t^5}{12st^2}$.

6 Write p^{-1} in fractional form.

7 Write $\dfrac{8}{q^4}$ with a negative index.

8 Find $\sqrt{100}$.

Section B

6 Evaluate $\sqrt{72} \times \sqrt{2} \div \sqrt{36}$.

7 Simplify $\sqrt{90}$.

8 Simplify $5\sqrt{2} + \sqrt{8} + 3\sqrt{18}$.

9 Simplify $4\sqrt{5} \times \sqrt{40}$.

10 Simplify $\dfrac{2\sqrt{6}}{\sqrt{72}}$.

Section C

4 Factorise $27xy - 45y$.

5 Factorise $25y^2 - 85xy + 35x^2y^2$.

6 Factorise $-27abc + 36ac - 18a^2bc$.

7 Factorise $9(x - 2y) + b(x - 2y)$.

8 Factorise $7x + 14 - 2xy - 4y$.

9 Factorise $3abc + 6ac + b + 2$.

10 Factorise $12xy - 8 + 3x^2y - 2x$.

Section D

6 Solve the quadratic equation $6p(3p - 5) = 0$.

7 Solve the quadratic equation $5x^2 - 80 = 0$.

8 Solve the quadratic equation $5x^2 - 12x = 0$.

9 Solve the quadratic equation $x^2 - 12x + 11 = 0$.

10 Solve the quadratic equation $x^2 + x - 2 = 0$.