SKILLS CHECK

QUESTION 1

Find the gradient of the curve $y = \sqrt{x} + \frac{1}{x^2}$ at the point where x = 4

QUESTION 2

Find $\int 3x^2 - 2x + 4\ dx$

QUESTION 3

Solve $1 - sin^2\theta = 2cos\theta$ for $0° < \theta < 720°$

QUESTION 4

Show that $\frac{6\sqrt{3}-4}{2-\sqrt{3}}$ can be expressed in the from $a + b\sqrt{3}$

QUESTION 5

Divide $2x^3 + 3x^2 - 2x - 3$ by $x + 1$

WEEK 1

SKILLS CHECK

QUESTION 1

Find the gradient of the curve $y = \frac{x^2+2x}{\sqrt{x}}$ at the point where x = 9

QUESTION 2

Find $\int (4-x)(3x+2)\,dx$

QUESTION 3

Solve $cos^2\theta - sin^2\theta = -0.5$ for $0° < \theta < 360°$

QUESTION 4

Simplify $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ by rationalising the denominator

QUESTION 5

Divide $3x^3 - 8x^2 + 3x + 2$ by $x - 2$

WEEK 2

SKILLS CHECK

QUESTION 1

Find the gradient of the tangent to the curve $y = \sqrt{x}\left(x^3 + \frac{1}{x^2}\right)$ at the point where x = 4

QUESTION 2

Find $\int x(x-3)(2x+1)\,dx$

QUESTION 3

Solve for $3tan\theta sin\theta = cos\theta$ for $0° < \theta < 360°$

QUESTION 4

Find the value of x $2^x \times \frac{1}{4} \times 8 = 2^7$

QUESTION 5

Divide $8x^3 - 26x^2 + 3x + 9$ by $2x + 1$, factorise completely and sketch the graph of $y = 8x^3 - 26x^2 + 3x + 9$

SKILLS CHECK

QUESTION 1

$y = \left(x + \frac{1}{x}\right)\left(\frac{1}{x^2} - x\right)$ find $\frac{dy}{dx}$

QUESTION 2

Find $\int_1^2 6x^2 + 4x - 3\ dx$

QUESTION 3

Solve $2cos^2\theta - 3sin\theta = 0$ for $0° < \theta < 360°$

QUESTION 4

Find the value of x

$$27 \times \frac{1}{9} \times 3^{-x} = \frac{1}{81}$$

QUESTION 5

Divide $x^3 - 7x + 6$ by $x - 1$. Factorise completely and use this to sketch the graph of $y = x^3 - 7x + 6$

WEEK 4

SKILLS CHECK

QUESTION 1

Find coordinates of the stationary points of the curve $y = \frac{4}{x^2} + x$

QUESTION 2

Find $\int_0^2 4x - 3x^2 + 1 \, dx$

QUESTION 3

Solve $cos^2\theta + cos\theta = sin^2\theta$ for $0° < \theta < 360°$

QUESTION 4

Simplify $8^{\frac{1}{2}} - 2^{\frac{5}{2}} + 2^{\frac{7}{2}}$

QUESTION 5

Divide $x^3 + x - 2$ by $x - 1$

WEEK 5

SKILLS CHECK

QUESTION 1

Find the coordinates of the point on the curve $y = 2\sqrt{x} - 1$ where the gradient of the curve is 3

QUESTION 2

Find $\int_{-1}^{1} 2(x+3)^2 dx$

QUESTION 3

Solve $6sin^2\theta + cos\theta = 4$ for $0° < \theta < 360°$

QUESTION 4

Show that $\frac{3\sqrt{3}-5}{\sqrt{3}-2}$ can be expressed in the from $a + b\sqrt{3}$

QUESTION 5

Divide $x^3 + 3x^2 - 3x - 9$ by $x + 3$ and sketch the graph of $y = x^3 + 3x^2 - 3x - 9$

SKILLS CHECK

QUESTION 1

Find the gradient(s) of the curve $y = \frac{1}{x^2} - 4$ at the points where the curve intersects the x axis

QUESTION 2

Find $\int_1^2 3x^2 + 10x - 2\ dx$

QUESTION 3

Solve $3cos^2\theta + 5sin\theta = 5$ for $0° < \theta < 360°$

QUESTION 4

Simplify $3^{\frac{4}{3}} - 3^{\frac{1}{3}} + 3^{\frac{7}{3}}$

QUESTION 5

Divide $4x^4 - 37x^2 + 9$ by $2x - 1$

WEEK 7