SKILLS CHECK

QUESTION 1

Calculate the finite area enclosed by the graph of y = x(x – 4) an the x- axis

QUESTION 2

The graph of $y = x^2 - \frac{1}{3}x^3 + ax$ passes through (3,24). Find the x- coordinates of the stationary points

QUESTION 3

a = 4i – j and **b** = 3i + 2j . Find |2**b** – **a**|

QUESTION 4

Prove that $(\cos x - \sin x)^2 + (\sin x + \cos x)^2 = 2$

QUESTION 5

Find the coefficient of the x^5 term in the expansion of $\left(3 + \frac{1}{3}x\right)^9$

SKILLS CHECK

QUESTION 1

Calculate the finite are enclosed by the graph of $y = 16 + 6x - x^2$ and the x-axis

QUESTION 2

Given that $y = x^3 - 5x^2 + kx$ has a stationary point where x = 2, find the y coordinate at the stationary point

QUESTION 3

If $q = \begin{pmatrix} -3 \\ 4 \end{pmatrix}$ find the vector parallel to q with magnitude 25

QUESTION 4

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

QUESTION 5

Find the coefficient of the x^4 term in the expansion of $(x - 1)(1 + 2x)^7$

WEEK 2

SKILLS CHECK

QUESTION 1

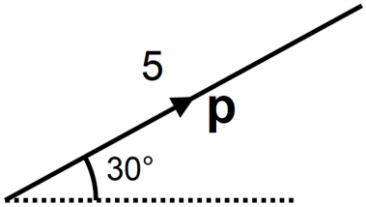
Sketch the graph of y = x(x - 1)(x - 3). Calculate the total area bounded by the graph of y and the x axis between x = 0 and x = 3

QUESTION 2

Given that $y = 2\sqrt{x} - ax + 10$ passes through the point (1,6) find the x-coordinate of the stationary point

QUESTION 3

Express **p** in the from ai + bj



QUESTION 4

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

QUESTION 5

Find the coefficient of the x^5 term in the expansion of $\left(\frac{1}{3} - 3x\right)^{10}$

SKILLS CHECK

QUESTION 1

Find $\int_4^9 3x + 4\sqrt{x} + 2\ dx$

QUESTION 2

Find the equation of the normal to the curve $y = 8x^4 - 3$ at the point where $x = -½$

QUESTION 3

If $\overrightarrow{OX} = 4i - 8j$ and $\overrightarrow{OY} = -4i + 5j$ calculate $|\overrightarrow{XY}|$

QUESTION 4

Show that $tan\theta + \frac{1}{tan\theta} = \frac{1}{sin\theta cos\theta}$

QUESTION 5

Find the coefficient of the x^4 term in the expansion of $(x^2 - 1)(2 - 3x)^5$

WEEK 4

SKILLS CHECK

QUESTION 1

Find $\int_1^9 1 + 2x + \sqrt{x}\, dx$

QUESTION 2

Find the equation of the normal to the curve y = $10\sqrt{x} - 10$ at the point where x = 4

QUESTION 3

ai + bj is a vector of magnitude $\sqrt{3}$ in the direction parallel to 3i – 3j
Find the exact values of and b.

QUESTION 4

Solve $\frac{4cos\theta - 1}{tan\theta} = 2sin\theta$ $\quad 0^o < \theta < 360^o$

QUESTION 5

Find the coefficient of the x^6 term in the expansion of $\left(\frac{1}{2} + 2x\right)^{12}$

WEEK 5

SKILLS CHECK

QUESTION 1

Evaluate $\int_{-3}^{0}(2x+3)^2 dx$

QUESTION 2

Find the equation of the tangent to the curve y = $x^2\sqrt{x}$ at the point where x = 4

QUESTION 3

The position vector of A is 6i + 8j. The position of the midpoint of the line joining A and B is 3i + 2j. Find $|\overrightarrow{AB}$

QUESTION 4

Solve $5sin\theta = 1 + 2cos^2\theta$ $0^o < \theta < 360^o$

QUESTION 5

Find the coefficient of the x^5 term in the expansion of $(x^2-2)(2-2x)^6$

SKILLS CHECK

QUESTION 1

Calculate the area enclosed by the parabolas $y = 10x - 2x^2$ and $y = 5x - x^2$

QUESTION 2

Find the x coordinates of the stationary points of the curve $y = x^5 - 60x^3$

QUESTION 3

O, A and B are vertices of a triangle. If $\overrightarrow{OA} = \begin{pmatrix} 4 \\ 2 \end{pmatrix}$ and $\overrightarrow{OB} = \begin{pmatrix} 8 \\ 0 \end{pmatrix}$ calculate the area of the triangle

QUESTION 4

Solve $\sin(3x - 60^o) = 0.5$ for $0^o \leq x \leq 360^o$

QUESTION 5

Find the coefficient of the x^5 term in the expansion of $\left(3 - \frac{1}{3}x\right)^{11}$

WEEK 7