

SKILLS CHECK

QUESTION 1

Find the value of p for which the equation $(p - 3)x^2 + px + 3 = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $px^2 + 2px + 3 = 0$ has no real roots

QUESTION 3

Find the equation of the line parallel to the line $2y + 4x = 7$ passing through point $(1,5)$. Give your answer in the form $ax + by = c$

QUESTION 4

Use the binomial expansion to write down the first four terms of $(1 + 2x)^7$

QUESTION 5

Find the gradient of the tangent to the curve $y = x^3 - 2x^2 + 2x - 1$ at the point $(-1,-6)$

WEEK 1

SKILLS CHECK

QUESTION 1

Find the values of k for which the equation $8x^2 + (k + 6)x + k = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $x^2 + 2px + 1 = 0$ has no real roots

QUESTION 3

Find the equation of the line parallel to the line $6y + 3x = -4$ passing through point $(-3,4)$. Give your answer in the form $ax + by = c$

QUESTION 4

Use the binomial expansion to write down the first four terms of $(1 - 4x)^{10}$

QUESTION 5

Find the coordinates of the stationary points of the curve $y = 2x^3 - 24x$

WEEK 2

SKILLS CHECK

QUESTION 1

Find the values of k for which the equation $9x^2 + kx + k - 5 = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $3x^2 + px + 3 = 0$ has real and distinct roots

QUESTION 3

Find the equation of the line through point $(2, -3)$ which is perpendicular to the line passing through points $(2, -3)$ and $(4, 5)$. Give your answer in the form $ax + by = c$

QUESTION 4

Use the binomial expansion to write down the first three terms of $(2 - 3x)^{10}$

QUESTION 5

Find the gradient of the tangent to the curve

$$y = \frac{1}{2}x^2 + \frac{1}{6}x^3 - \frac{1}{4}x \text{ at the point where } x = \frac{1}{2}$$

SKILLS CHECK

QUESTION 1

Find the values of p for which the equation $(p - 1)x^2 + px + 5x + 8 = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $px^2 + 4x + 5 - p = 0$ has real and distinct roots

QUESTION 3

Find the equation of the line through point $(6, 3)$ which is parallel to the line passing through points $(-4, -1)$ and $(-6, 9)$. Give your answer in the form $ax + by = c$

QUESTION 4

Find the coefficient of the 4th term in the expansion of $(4 + \frac{x}{2})^9$

QUESTION 5

Find the gradient of the tangent to the curve
 $y = \frac{3}{2}x^2 + \frac{5}{6}x^3 - \frac{5}{4}x$ at the point where $x = -1$

SKILLS CHECK

QUESTION 1

Find the value of p for which the equation $(p - 1)x^2 + px + 4x + 5 = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $x^2 + 3(p + 1)x + p + 1 = 0$ has no real roots

QUESTION 3

Find the equation of the line perpendicular to the line $2y - x = 5$ passing through point $(-2, 4)$. Give your answer in the form $ax + by = c$

QUESTION 4

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

QUESTION 5

Find the x-coordinates of the stationary points of the curve
 $y = 5x^3 - 2x^2 - 3x + 10$

SKILLS CHECK

QUESTION 1

Find the values of k for which the equation $(k - 3)x^2 + (k + 3)x + k + 3 = 0$ has a repeated root

QUESTION 2

Find the values of p for which the equation $2x^2 - (1 + p)x + 5 = p$ has real and distinct roots

QUESTION 3

Find the equation of the line perpendicular to the line $5y - 2x = 10$ passing through point $(-4, 3)$. Give your answer in the form $ax + by = c$

QUESTION 4

Find the coefficient of the 5th term in the expansion of $(2 - \frac{3x}{2})^8$

QUESTION 5

Find the equation of the tangent to the curve $y = 5 - 10x + x^3$ at the point when $x = -1$

WEEK 6

SKILLS CHECK

QUESTION 1

Find the values of k for which the equation $kx^2 + (k + 5)x + 2k + 1 = k + 1$ has a repeated root

QUESTION 2

Find the values of p for which the equation $4x^2 + 8x - 4px + 8 - 7p = 0$ has no real roots

QUESTION 3

Find the equation of the line parallel to the line $4y + 3x = 5$ passing through point $(-4, 4)$. Give your answer in the form $ax + by = c$

QUESTION 4

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

QUESTION 5

Find the values of x for which the tangents to the curve $y = 3x^3 + 6x^2 - 2x + 5$ are parallel to the graph $y - 3x = 2$