<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Show that ((x - 1)) is a factor of (f(x) = 2x^3 + x^2 - 8x + 5). Hence fully factorise (f(x)) fully.</td>
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<td>2</td>
<td>Express (x^2 + 8x + 3) in the form ((x + p)^2 + q) and state the coordinates of the turning point of the parabola.</td>
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<td>3</td>
<td>Evaluate: (\log_52 + \log_550 - \log_54)</td>
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<td>4</td>
<td>What is the solution of the equation (2\sin x - \sqrt{3} = 0) where (\frac{\pi}{2} \leq x \leq \pi)?</td>
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<td>5</td>
<td>Given that (0 \leq a \leq \frac{\pi}{2}) and (\sin a = \frac{3}{5}), find an expression for (\sin(x + a)).</td>
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<td>6</td>
<td>If (= 4x^3 + 5x^2 - 3x + 2), find (\frac{dy}{dx}).</td>
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<td>7</td>
<td>Find the coordinates of the turning points of the curve with equation (y = x^3 - 3x^2 - 9x + 12) and determine their nature.</td>
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<td>8</td>
<td>Find (\int (2x^{-4} + \cos 5x) , dx).</td>
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<td>9</td>
<td>(\frac{dy}{dx} = 8x - 3). If (y = 7) when (x = 2), find an equation for (y).</td>
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<td>10</td>
<td>The expression (\sqrt{3}\sin x - \cos x) can be written in the form (k\sin(x - a)), where (k &gt; 0) and (0 \leq a &lt; 360). Calculate the values of (k) and (a).</td>
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11 A function \( f \) is given by \( f(x) = \sqrt{9 - x^2} \). What is a suitable domain of \( f \)?

12 The diagram shows the graph with equation of the form \( y = a \cos bx \) for \( 0 \leq x \leq 2\pi \). What is the equation of this graph?

13 \( E(-2,-1,4), P(1,5,7) \) and \( F(7,17,13) \) are three collinear points. \( P \) lies between \( E \) and \( F \). What is the ratio in which \( P \) divides \( EF \)?

14 Vectors \( p \) and \( q \) are such that \( |p| = 3 \), \( |q| = 4 \) and \( p \cdot q = 10 \). Find the value of \( q \cdot (p + q) \).

15 Write down the exact values of \( \sin 60^\circ \) and \( \tan \frac{\pi}{6} \).

16 The diagram shows a line \( L \); the angle between \( L \) and the positive direction of the \( x \)-axis is \( 135^\circ \), as shown. What is the gradient of the line \( L \)?

17 The vertices of triangle \( ABC \) are \( A(7,9), B(-3,-1) \) and \( C(5,-5) \) as shown in the diagram. Find the equation of the median from \( C \).

18 The \( x \)-axis is a tangent to a circle with centre \((-7, 6)\) as shown in the diagram. What is the equation of the circle?

19 A sequence is defined by the recurrence relation \( u_{n+1} = 0.3u_n + 6 \) with \( u_{10} = 10 \). What is the value of \( u_{12} \)?

20 The diagram shows graphs with equations \( y = 14 - x^2 \) and \( y = 2x^2 + 2 \). Calculate the shaded area.