Weekly Quiz – Term 1 Week 8

|  |  |
| --- | --- |
| **1.**  **[3]**  **[2]**  **[4]** | Solve the following equations (show all working and leave answers in exact form):  (a)  (b)  (c) |
| **2.**  **[6]** | In the diagram  ,  and the exterior angle at B is  .     1. Calculate the length of BC. (2 marks) 2. Calculate the area of triangle ABC. (2 marks) 3. Calculate the length of the line from A to the mid-point of BC. (2 marks) |
| **3.**  **[6]** | The cross-section of a wooden hand rail is formed by the intersection of two quadratic functions shown below. The upper curve is modelled by the equation  . The equation of the lower curve is a quadratic of the form  . The two curves meet at  .    (a) Determine the coordinates of the point where the two curves meet. (2 marks)  (b) Determine  and hence state the equation of the lower curve (2 marks)  (c) If the hand rail was moved up 3 cm, determine the new equations of the upper and lower curves. (2 marks) |

|  |
| --- |
| Solution    Solution    Solution |
| Solution    Using the sine rule:    Solution    Using the area rule:    Solution    Let the mid-point of BC be D. BD = 32.57 cm  Using the cosine rule: |
| Solution  substitute  into upper curve and get    therefore coordinates are (9, 9)  Solution  using the coordinate (9, 9)    Solution  new upper curve:  new lower curve: |