

| Q | Marking instructions                                                                             | AO   | Marks    | Typical solution                                                                                                                                                                                                                       |
|---|--------------------------------------------------------------------------------------------------|------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | Multiplies numerator and denominator by conjugate of the denominator<br>Condone missing brackets | 1.1b | B1       | $\frac{\sqrt{3} + 3\sqrt{5}}{\sqrt{5} - \sqrt{3}} \times \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ $= \frac{3 \times 5 + 3 + \sqrt{15} + 3\sqrt{15}}{5 - 3}$ $= \frac{18 + 4\sqrt{15}}{2}$ $= 9 + 2\sqrt{15}$ $= 9 + \sqrt{60}$ |
|   | Obtains $18 + 4\sqrt{15}$                                                                        | 1.1b | B1       |                                                                                                                                                                                                                                        |
|   | Obtains denominator of 2                                                                         | 1.1b | B1       |                                                                                                                                                                                                                                        |
|   | Obtains $9 + \sqrt{60}$<br>Accept $a = 9, b = 60$                                                | 1.1b | B1       |                                                                                                                                                                                                                                        |
|   | <b>Question 3 Total</b>                                                                          |      | <b>4</b> |                                                                                                                                                                                                                                        |