

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|---------------------------|------|--|--|
| 16 (a) | $3\sqrt{5}$ | M1 | for $\frac{15}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ or $\frac{15}{\sqrt{5}} \times \frac{-\sqrt{5}}{-\sqrt{5}}$ | This mark can be awarded whenever this is seen, which might be later in the process. |
| | | A1 | for $3\sqrt{5}$ or $\sqrt{45}$ | |
| (b) | $\frac{32-9\sqrt{3}}{11}$ | M1 | (indep) for writing $\sqrt{75}$ as $5\sqrt{3}$ | |
| | | M1 | for method to rationalise the denominator, eg $\frac{\sqrt{75}-2}{1+2\sqrt{3}} \times \frac{1-2\sqrt{3}}{1-2\sqrt{3}}$ or $\frac{5\sqrt{3}-2}{1+2\sqrt{3}} \times \frac{1-2\sqrt{3}}{1-2\sqrt{3}}$ | |
| | | M1 | (dep on previous M1) for expanding terms, condone one error in numerator or denominator eg $\frac{\sqrt{75}-2\sqrt{75}\sqrt{3}-2+4\sqrt{3}}{1-2\sqrt{3}+2\sqrt{3}-4\sqrt{3}\sqrt{3}}$ or $\frac{5\sqrt{3}-10\sqrt{3}\sqrt{3}-2+4\sqrt{3}}{1-2\sqrt{3}+2\sqrt{3}-4\sqrt{3}\sqrt{3}}$ | |
| | | A1 | for $\frac{32-9\sqrt{3}}{11}$ oe eg $\frac{-32+9\sqrt{3}}{-11}$ | Accept $a = 32, b = 9, c = 11$ |