Past Paper Questions – Surds

Note – nowadays these questions would be worded in such a way as to get round the fact that new models of calculator can simplify surds. So these should be answered without a calculator.

14. (a) Find the value of $\sqrt{5} \times \sqrt{20}$.

....
(1)

$\sqrt{5} + \sqrt{20} = k\sqrt{5}$, where k is an integer.

(b) Find the value of k.

....
(1)

(c) Find the value of $\dfrac{\sqrt{5} + \sqrt{45}}{\sqrt{20}}$

(c) Evaluate $(2\sqrt{3})^4$

....

(b) (i) Rationalise the denominator of $\dfrac{21}{\sqrt{7}}$ and simplify your answer.

....

(ii) Expand $\left(\sqrt{5} + 2\sqrt{3}\right)\left(\sqrt{5} - 2\sqrt{3}\right)$
Express your answer as simply as possible.

17. Work out

$$\frac{\left(3-\sqrt{2}\right)\left(2+3\sqrt{2}\right)}{\sqrt{8}}$$

Give your answer in its simplest form.