14 Simplify.

$\sqrt{125} + \sqrt{80}$

..... [2]

11 Simplify $\sqrt{27} + \sqrt{12} - \sqrt{108}$.

..... [2]

8 Expand and simplify $(2\sqrt{3}-5)(4+\sqrt{3})$.

..... [2]

11 Expand and simplify.

$$(4+2\sqrt{3})(5-\sqrt{3})$$

..... [2]

13 $\left(2\sqrt{3}-3\sqrt{2}\right)^2 = p+q\sqrt{6}$

Find the value of p and the value of q.

$p =$ .....

$q =$ ..... [3]

15 **(a)** Expand and simplify.

$$(2-\sqrt{5})(1-3\sqrt{5})$$

..... [2]

(b) Rationalise the denominator.
Give your answer in its simplest form.

$$\frac{6}{\sqrt{10}}$$

..... [2]

18 **(a)** $\frac{9}{\sqrt{3}}$

Rationalise the denominator.
Give your answer in its simplest form.

..... [2]

(b) $(5-\sqrt{2})(1+3\sqrt{2}) = c+k\sqrt{2}$

Find the value of c and the value of k.

$c =$ .....

$k =$ .....

[2]

15 **(a)** Simplify.

$$\sqrt{27} + \sqrt{12}$$

..... [2]

(b) $\dfrac{40\sqrt{8}}{5\sqrt{2}} = k$, where k is an integer.

Find the value of k.

$k =$ ..... [2]

13 Rationalise the denominator.

$$\frac{2}{\sqrt{3}}$$

..... [1]

20 **(a)** Simplify.

$$\sqrt{300} + \sqrt{48}$$

..... [2]

(b) Rationalise the denominator and simplify.

$$\frac{9}{2+\sqrt{7}}$$

..... [3]

(c) Rationalise the denominator.

$$\frac{1}{3-\sqrt{5}}$$

..... [2]

19 **(a)** Simplify.

$$\sqrt{32} + \sqrt{98}$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{2}+1}$$

..... [2]

13 Rationalise the denominator and simplify.

$$\frac{2}{\sqrt{5}+1}$$

..... [3]

13 Rationalise the denominator and simplify.

$$\frac{2}{3-\sqrt{5}}$$

..... [3]

7 **(a)** Simplify $\sqrt{98}$.

..... [1]

(b) Rationalise the denominator.

$$\frac{3}{\sqrt{5}-2}$$

..... [2]

13 **(a)** Simplify fully.

$$\sqrt{75}-\sqrt{48}+\sqrt{12}$$

..... [2]

(b) Rationalise the denominator, giving your answer in its simplest form.

$$\frac{1}{\sqrt{3}+5}$$

..... [2]

6 **(a)** Simplify.

$$\sqrt{75} - \sqrt{27}$$

..... [2]

(b) Rationalise the denominator and simplify your answer.

$$\frac{10}{5-\sqrt{5}}$$

..... [3]

13 Write in the form $a+b\sqrt{3}$ where a and b are integers.

(a) $(5+2\sqrt{3})^2$

..... [2]

(b) $\dfrac{5}{2+\sqrt{3}}$

..... [2]

13 Rationalise the denominator.

$$\frac{9}{\sqrt{7}-2}$$

..... [2]

15 Rationalise the denominator.

$$\frac{\sqrt{5}}{\sqrt{5}-1}$$

..... [2]

11 **(a)** Simplify.

$$\sqrt{50}-\sqrt{8}$$

..... [2]

(b) By rationalising the denominator, simplify

$$\frac{12}{\sqrt{7}-\sqrt{3}}.$$

..... [3]

14 Rationalise the denominator.

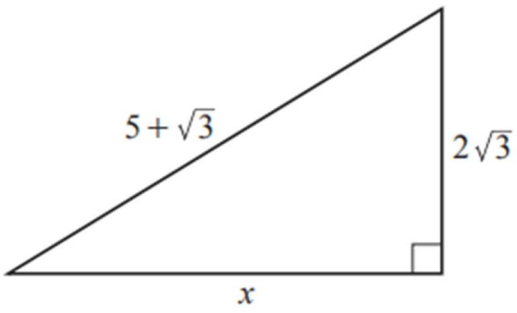
$$\frac{5}{\sqrt{3}-\sqrt{2}}$$

..... [2]

17 Simplify by rationalising the denominator. $\dfrac{3}{2\sqrt{2}-1}$

..... [2]

11 In this question all lengths are in centimetres.



NOT TO SCALE

Find the value of x^2.
Give your answer in the form $a+b\sqrt{3}$ where a and b are integers.

$x^2 =$ ..... [4]

4 You are given that $\sqrt{7} = 2.65$ and $\sqrt{70} = 8.37$, each correct to 2 decimal places.

Use this information to find the value of

(a) $\sqrt{700}$,

..... [1]

(b) $\sqrt{280}$.

..... [1]

17 **(a)** Expand the brackets and simplify.

$$\left(\sqrt{a}+\sqrt{b}\right)\left(\sqrt{a}-\sqrt{b}\right)$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{7}+\sqrt{6}}$$

..... [1]

(c) Work out the value of

$$\frac{1}{\sqrt{9}+\sqrt{8}}+\frac{1}{\sqrt{8}+\sqrt{7}}+\frac{1}{\sqrt{7}+\sqrt{6}}+\frac{1}{\sqrt{6}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{4}}.$$

..... [2]