Rationalising Surds (D)
ANSWERS

Section A *Rationalise the denominator of the following.*

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

2) $\frac{11}{\sqrt{5}}$ $\frac{11\sqrt{5}}{5}$

3) $\frac{9}{\sqrt{7}}$ $\frac{9\sqrt{7}}{7}$

4) $\frac{4}{\sqrt{11}}$ $\frac{4\sqrt{11}}{11}$

5) $\frac{20}{\sqrt{13}}$ $\frac{20\sqrt{13}}{13}$

6) $\frac{15}{\sqrt{3}}$ $5\sqrt{3}$

7) $\frac{14}{\sqrt{2}}$ $7\sqrt{2}$

8) $\frac{20}{\sqrt{5}}$ $4\sqrt{5}$

9) $\frac{22}{\sqrt{11}}$ $2\sqrt{11}$

10) $\frac{8}{\sqrt{6}}$ $\frac{4\sqrt{6}}{3}$

11) $\frac{28}{3\sqrt{7}}$ $\frac{4\sqrt{7}}{3}$

12) $\frac{18}{5\sqrt{3}}$ $\frac{6\sqrt{3}}{5}$

13) $\frac{2}{7\sqrt{4}}$ $\frac{1}{7}$

14) $\frac{25}{3\sqrt{5}}$ $\frac{5\sqrt{5}}{3}$

15) $\frac{54}{9\sqrt{2}}$ $3\sqrt{2}$

16) $\frac{\sqrt{27}}{\sqrt{3}}$ 3

17) $\frac{\sqrt{75}}{\sqrt{3}}$ 5

18) $\frac{\sqrt{64}}{\sqrt{4}}$ 4

19) $\frac{\sqrt{98}}{\sqrt{2}}$ 7

20) $\frac{\sqrt{24}}{\sqrt{6}}$ 2

Section B *Rationalise the denominators of the following.*

1) $\frac{11}{2-\sqrt{3}}$ $22+11\sqrt{3}$

2) $\frac{1}{2-\sqrt{5}}$ $-2-\sqrt{5}$

3) $\frac{12}{3-\sqrt{3}}$ $6+2\sqrt{3}$

4) $\frac{7}{1+\sqrt{2}}$ $7\sqrt{2}-7$

5) $\frac{4}{3+\sqrt{11}}$ $-6+2\sqrt{11}$

6) $\frac{1}{\sqrt{3}-1}$ $\frac{1+\sqrt{3}}{2}$

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Section C

1) Express $\frac{\sqrt{9}+13}{\sqrt{9}-1}$ as an integer.

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2) Express $\frac{\sqrt{3}+3}{\sqrt{3}-1}$ in the form $m + n\sqrt{3}$, where m and n are integers.

$3 + 2\sqrt{3}$

3) Express $\frac{\sqrt{2}+5}{\sqrt{2}-1}$ in the form $a\sqrt{2} + b$, where a and b are integers.

$6\sqrt{2} + 7$

4) Express $\frac{\sqrt{12}-6}{\sqrt{12}+2}$ in the form $a - b\sqrt{3}$, where a and b are integers.

$3 - 2\sqrt{3}$

5) Express $\frac{\sqrt{7}+4}{2\sqrt{7}-2}$ in the form $p\sqrt{7} + q$, where p and q are rational.

$\frac{5}{12}\sqrt{7} + \frac{11}{12}$

6) Express $\frac{2\sqrt{3}+8}{5\sqrt{3}-6}$ in the form $q + p\sqrt{3}$, where p and q are rational.

$2 + \frac{4}{3}\sqrt{3}$