

Q1. Rationalise the denominator :

(i) $\frac{1}{\sqrt{2}}$ (ii) $\frac{1}{\sqrt{5}}$ (iii) $\frac{1}{\sqrt{7}}$ (iv) $\frac{1}{\sqrt{23}}$ (v) $\frac{28}{\sqrt{7}}$ (vi) $\frac{2}{\sqrt{7}}$ (vii) $\frac{5}{\sqrt{11}}$ (viii) $\frac{54}{\sqrt{6}}$

(ix) $\frac{2}{7\sqrt{2}}$ (x) $\frac{3}{7\sqrt{3}}$ (xi) $\frac{5}{2\sqrt{2}}$ (xii) $\frac{3\sqrt{5}}{21\sqrt{15}}$ (xiii) $\frac{7\sqrt{3}}{56\sqrt{24}}$ (xiv) $\frac{1}{\sqrt{5}-2}$ (xv) $\frac{1}{\sqrt{10}-3}$

Ans. 1 (i) $\frac{\sqrt{2}}{2}$ (ii) $\frac{\sqrt{5}}{5}$ (iii) $\frac{\sqrt{7}}{7}$ (iv) $\frac{\sqrt{23}}{23}$ (v) $4\sqrt{7}$ (vi) $\frac{2\sqrt{7}}{7}$ (vii) $\frac{5\sqrt{11}}{11}$ (viii) $9\sqrt{6}$

(ix) $\frac{\sqrt{2}}{7}$ (x) $\frac{\sqrt{3}}{7}$ (xi) $\frac{5\sqrt{2}}{4}$ (xii) $\frac{\sqrt{3}}{21}$ (xiii) $\frac{\sqrt{8}}{64}$ (xiv) $\sqrt{5} + 2$ (xv) $\sqrt{10} + 3$



Q2. Rationalise the denominator :

(i) $\frac{1}{\sqrt{17}-4}$ (ii) $\frac{1}{2-\sqrt{3}}$ (iii) $\frac{1}{\sqrt{5}-\sqrt{4}}$ (iv) $\frac{1}{\sqrt{7}-\sqrt{6}}$ (v) $\frac{1}{\sqrt{7}+2}$ (vi) $\frac{1}{5-\sqrt{2}}$ (vii) $\frac{1}{3+\sqrt{2}}$

(viii) $\frac{1}{\sqrt{6}-\sqrt{5}}$ (ix) $\frac{1}{\sqrt{5}+\sqrt{2}}$ (x) $\frac{1}{\sqrt{7}-2}$ (xi) $\frac{5}{\sqrt{3}-\sqrt{5}}$ (xii) $\frac{1}{7+3\sqrt{2}}$

Ans. 2 (i) $\sqrt{17} + 4$ (ii) $2 + \sqrt{3}$ (iii) $\sqrt{5} + \sqrt{4}$ (iv) $\sqrt{7} + \sqrt{6}$ (v) $\frac{\sqrt{7}-2}{3}$ (vi) $\frac{5+\sqrt{2}}{23}$

(vii) $\frac{3-\sqrt{2}}{7}$ (viii) $\sqrt{6} + \sqrt{5}$ (ix) $\frac{\sqrt{5}-\sqrt{2}}{3}$ (x) $\frac{\sqrt{7}+2}{3}$ (xi) $\frac{-5(\sqrt{3}+\sqrt{5})}{2}$ (xii) $\frac{7-3\sqrt{2}}{31}$

Q3. Rationalise the denominator :

(i) $\frac{16}{\sqrt{41}-5}$ (ii) $\frac{30}{5\sqrt{3}-3\sqrt{5}}$ (iii) $\frac{1+\sqrt{7}}{1-\sqrt{7}}$ (iv) $\frac{6-4\sqrt{3}}{6+4\sqrt{3}}$ (v) $\frac{7}{3\sqrt{3}-2\sqrt{2}}$

Ans. 3 (i) $\sqrt{41} + 5$ (ii) $5\sqrt{3} + 3\sqrt{5}$ (iii) $\frac{-(4+\sqrt{7})}{3}$ (iv) $4\sqrt{3} - 7$ (v) $\frac{21\sqrt{3}+14\sqrt{2}}{19}$

Q4. Find the value of a and b in each of the following :

(i) $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a - b\sqrt{3}$ (ii) $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a + b\sqrt{7}$ (iii) $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = a + b\sqrt{15}$

(iv) $\frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}} = a - b\sqrt{77}$ (v) $\frac{2+5\sqrt{7}}{2-5\sqrt{7}} = a + b\sqrt{7}$ (vi) $\frac{7+3\sqrt{5}}{3+\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}} = a + b\sqrt{5}$

Ans. 4 (i) $a = 2, b = 1$ (ii) $a = 8, b = 3$ (iii) $a = 4, b = 1$ (iv) $a = \frac{9}{2}, b = \frac{1}{2}$

(v) $a = \frac{-179}{171}, b = \frac{-20}{171}$ (vi) $a = 0, b = 1$