



1. $(-7\sqrt{8}) \div (-7\sqrt{7}) =$

- (i) 4 (ii) $\frac{2}{7}\sqrt{14}$ (iii) $\frac{2}{7}\sqrt{16}$ (iv) $\frac{2}{7}\sqrt{14}$ (v) $\frac{2}{7}\sqrt{11}$

2. $(7\sqrt{9}+2\sqrt{6}) \div (8\sqrt{6}+6\sqrt{4}) =$

- (i) $(\frac{3}{5}\sqrt{9}-\frac{13}{20})$ (ii) $(\frac{3}{5}\sqrt{6}-\frac{13}{20})$ (iii) $(\frac{3}{5}\sqrt{4}-\frac{13}{20})$ (iv) $(\frac{3}{5}\sqrt{6}-\frac{13}{22})$ (v) $(\frac{3}{5}\sqrt{6}-\frac{13}{18})$

3. The rationalising factor of $\sqrt{82} =$

- (i) $\sqrt{84}$ (ii) $\sqrt{82}$ (iii) 82 (iv) $\sqrt{79}$ (v) $\sqrt[4]{82}$

4. The rationalising factor of $(10-\sqrt{2}) =$

- (i) $(10+2)$ (ii) $(10+\sqrt{2})$ (iii) $(10+\sqrt[4]{2})$ (iv) $(13+\sqrt{2})$ (v) $(8+\sqrt{2})$

5. Rationalise the denominator of $\frac{1}{(-\sqrt{6})}$

- (i) $(-\frac{1}{6}\sqrt{6})$ (ii) $(-\frac{1}{6}\sqrt{8})$ (iii) $(-\frac{1}{6}\sqrt[4]{6})$ (iv) (-1) (v) $(-\frac{1}{6}\sqrt{3})$

6. Rationalise the denominator of $\frac{1}{(-\sqrt{4}+\sqrt{5})}$

- (i) $(0+\sqrt{5})$ (ii) $(4+\sqrt{5})$ (iii) $(2+\sqrt[4]{5})$ (iv) $(2+5)$ (v) $(2+\sqrt{5})$

7. Rationalise the denominator of $\frac{1}{(-5\sqrt{2}+3\sqrt{4})}$

- (i) $(-\frac{5}{14}\sqrt{4}-\frac{3}{7})$ (ii) $(-\frac{5}{14}\sqrt{2}-\frac{3}{7})$ (iii) $(-\frac{5}{14}\sqrt{2}-\frac{1}{3})$ (iv) $(-\frac{5}{14}\sqrt{\frac{1}{2}}-\frac{3}{7})$ (v) $(-\frac{5}{14}\sqrt{2}-\frac{3}{5})$

8. Rationalise the denominator of $\frac{1}{(-4-\sqrt{2}+\sqrt{5})}$

(i) $(-\frac{38}{41} + \frac{19}{41}\sqrt{2} - \frac{13}{41}\sqrt{5} + \frac{8}{41}\sqrt{10})$ (ii) $(-\frac{36}{41} + \frac{19}{41}\sqrt{2} - \frac{13}{41}\sqrt{5} + \frac{8}{41}\sqrt{10})$

(iii) $(-\frac{36}{41} + \frac{19}{41}\sqrt{2} - \frac{13}{41}\sqrt{5} + \frac{8}{41}\sqrt{10})$ (iv) $(-\frac{36}{41} + \frac{19}{41}\sqrt{2} - \frac{13}{41}\sqrt{5} + \frac{8}{41}\sqrt{10})$

(v) $(-\frac{36}{41} + \frac{19}{41}\sqrt{2} - \frac{13}{41}\sqrt{5} + \frac{8}{41}\sqrt{12})$

9. Rationalise the denominator of $\frac{1}{(5\sqrt{4}-2\sqrt{2}+3\sqrt{3})}$

(i) $(\frac{648}{3361} + \frac{238}{3361}\sqrt{2} - \frac{243}{3361}\sqrt{3} - \frac{120}{3361}\sqrt{6})$ (ii) $(\frac{650}{3361} + \frac{238}{3361}\sqrt{2} - \frac{243}{3361}\sqrt{3} - \frac{120}{3361}\sqrt{8})$

(iii) $(\frac{650}{3361} + \frac{238}{3361}\sqrt{2} - \frac{243}{3361}\sqrt{3} - \frac{120}{3361}\sqrt{6})$ (iv) $(\frac{650}{3361} + \frac{238}{3361}\sqrt{2} - \frac{243}{3361}\sqrt{3} - \frac{120}{3361}\sqrt{6})$

(v) $(\frac{650}{3361} + \frac{238}{3361}\sqrt{2} - \frac{243}{3361}\sqrt{3} - \frac{120}{3361}\sqrt{6})$

10. Rationalise the denominator of $\frac{(\sqrt{2}+\sqrt{7})}{(\sqrt{3}-\sqrt{2})} =$

(i) $(\sqrt{6}+\sqrt{21}+2+\sqrt{14})$ (ii) $(\sqrt{6}+\sqrt{21}+2+\sqrt{16})$ (iii) $(\sqrt{6}+\sqrt{21}+2+\sqrt{14})$ (iv) $(\sqrt{6}+\sqrt{21}+3+\sqrt{14})$

(v) $(\sqrt{4}+\sqrt{21}+2+\sqrt{14})$

11. Rationalise the denominator of $\frac{(-\sqrt{8}+\sqrt{7})}{(5\sqrt{8}+4\sqrt{4})} =$

(i) $(-\frac{5}{17} + \frac{5}{68}\sqrt{14} + \frac{2}{17}\sqrt{2} - \frac{1}{17}\sqrt{7})$ (ii) $(-\frac{5}{17} + \frac{5}{68}\sqrt{14} + \frac{2}{17}\sqrt{2} - \frac{1}{17}\sqrt{10})$

(iii) $(-\frac{7}{17} + \frac{5}{68}\sqrt{14} + \frac{2}{17}\sqrt{2} - \frac{1}{17}\sqrt{7})$ (iv) $(-\frac{5}{17} + \frac{5}{68}\sqrt{14} + \frac{2}{17}\sqrt{2} - \frac{1}{17}\sqrt{7})$

(v) $(-\frac{5}{17} + \frac{5}{68}\sqrt{14} + \frac{2}{17}\sqrt{2} - \frac{1}{17}\sqrt{7})$

12. Simplify $\frac{(-\sqrt{3})}{(\sqrt{2}+\sqrt{4})} + \frac{(-\sqrt{3})}{(-\sqrt{4}+\sqrt{5})} - \frac{\sqrt{4}}{(\sqrt{2}+\sqrt{4})}$

(i) $(\frac{1}{2}\sqrt{6}-3\sqrt{3}-\sqrt{15}+\sqrt{2}-2)$ (ii) $(\frac{1}{2}\sqrt{4}-3\sqrt{3}-\sqrt{15}+\sqrt{2}-2)$ (iii) $(\frac{1}{2}\sqrt{6}-3\sqrt{3}-\sqrt{15}+\sqrt{2}-2)$

(iv) $(\frac{1}{2}\sqrt{6}-3\sqrt{3}-\sqrt{15}+\sqrt{2}-2)$ (v) $(\frac{1}{2}\sqrt{6}-3\sqrt{3}-\sqrt{15}+\sqrt{5}-2)$

13. Simplify $\frac{(-\sqrt{8})}{(\sqrt{9}+\sqrt{3})} - \frac{\sqrt{3}}{(\sqrt{6}-\sqrt{3})} - \frac{(-\sqrt{9})}{(\sqrt{5}-\sqrt{8})}$

(i) $(-4\sqrt{2}+\frac{1}{3}\sqrt{6}-1-\sqrt{5})$ (ii) $(-4\sqrt{2}+\frac{1}{3}\sqrt{6}+0-\sqrt{5})$ (iii) $(-4\sqrt{2}+\frac{1}{3}\sqrt{6}-1-\sqrt{5})$

(iv) $(-4\sqrt{\frac{1}{2}}+\frac{1}{3}\sqrt{6}-1-\sqrt{5})$ (v) $(-4\sqrt{2}+\frac{1}{3}\sqrt{6}-1-\sqrt{7})$

14. Simplify $\frac{\sqrt{3}}{(\sqrt{4}-\sqrt{2})} + \frac{(-\sqrt{3})}{(\sqrt{2}+\sqrt{3})} + \frac{\sqrt{3}}{(\sqrt{2}+\sqrt{4})}$

(i) $(2\sqrt{3}+\sqrt{3}-3)$ (ii) $(2\sqrt{3}+\sqrt{9}-3)$ (iii) $(2\sqrt{3}+\sqrt{6}-2)$ (iv) $(2\sqrt{3}+\sqrt{6}-3)$ (v) $(2\sqrt{3}+\sqrt{6}-4)$

15. Simplify $\frac{(-\sqrt{9})}{(\sqrt{4}-\sqrt{2})} + \frac{\sqrt{3}}{(\sqrt{4}-\sqrt{5})} - \frac{(-\sqrt{2})}{(-\sqrt{5}+\sqrt{7})}$

(i) $(-3-\frac{3}{2}\sqrt{2}-2\sqrt{3}-\sqrt{15}+\frac{1}{2}\sqrt{10}+\frac{1}{2}\sqrt{14})$ (ii) $(-3-\frac{3}{2}\sqrt{2}-2\sqrt{3}-\sqrt{17}+\frac{1}{2}\sqrt{10}+\frac{1}{2}\sqrt{14})$

(iii) $(-3-\frac{3}{2}\sqrt{2}-2\sqrt{3}-\sqrt{15}+\frac{1}{2}\sqrt{10}+\frac{1}{2}\sqrt{14})$ (iv) $(-3-\frac{3}{2}\sqrt{2}-2\sqrt{3}-\sqrt{15}+\frac{1}{2}\sqrt{10}+\frac{1}{2}\sqrt{14})$

(v) $(-5-\frac{3}{2}\sqrt{2}-2\sqrt{3}-\sqrt{15}+\frac{1}{2}\sqrt{10}+\frac{1}{2}\sqrt{14})$

Assignment Key

1) (iv)	2) (ii)	3) (ii)	4) (ii)	5) (i)	6) (v)
7) (ii)	8) (iv)	9) (iv)	10) (i)	11) (i)	12) (i)
13) (i)	14) (iv)	15) (iv)			