

EduSahara™ Learning Center Assignment

Grade : Class IX, CBSE

Chapter : Number Systems

Name : Rationalising the Denominator

1. Rationalise the denominator of $\frac{1}{(-9\sqrt{8})}$

(i) $(-\frac{1}{36}\sqrt{2})$ (ii) $(-\frac{1}{36}\sqrt{-1})$ (iii) $(-\frac{1}{18})$ (iv) $(-\frac{1}{36}\sqrt[4]{2})$ (v) $(-\frac{1}{36}\sqrt{4})$

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

(i) $(\frac{1}{7}\sqrt{2} + \frac{3}{5})$ (ii) $(\frac{1}{7}\sqrt{2} + \frac{1}{3})$ (iii) $(\frac{1}{7}\sqrt{5} + \frac{3}{7})$

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

3. Rationalise the denominator of $\frac{1}{(-9\sqrt{5} + 3\sqrt{8})}$

(i) $(-\frac{1}{37}\sqrt{5} - \frac{2}{111}\sqrt{2})$ (ii) $(-\frac{1}{37}\sqrt{5} - \frac{2}{111}\sqrt[4]{2})$ (iii) $(-\frac{1}{37}\sqrt{2} - \frac{2}{111}\sqrt{2})$

(iv) $(-\frac{1}{37}\sqrt{5} - \frac{4}{111})$ (v) $(-\frac{1}{37}\sqrt{8} - \frac{2}{111}\sqrt{2})$

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

(i) $(-\frac{1}{6}\sqrt{3} + \frac{1}{4}\sqrt{4} + \frac{1}{12}\sqrt{30})$

(ii) $(\frac{1}{6} - \frac{1}{4} + \frac{1}{12})$

$$= \frac{0}{\sqrt{}} + \frac{4}{\sqrt{}} + \frac{12}{\sqrt{}} + \frac{30}{\sqrt{}}$$

$$(iii) \left(-\frac{1}{6} \sqrt{3} + \frac{1}{4} \sqrt{2} + \frac{1}{12} \sqrt{30} \right)$$

$$(iv) \left(-\frac{1}{6} \sqrt{3} + \frac{1}{4} \sqrt{\frac{1}{2}} + \frac{1}{12} \sqrt{30} \right)$$

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

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5. Rationalise the denominator of

$$\frac{1}{(-\sqrt{3} - \sqrt{2} + 2\sqrt{4})}$$

$$(i) \left(\frac{15}{97} \sqrt{3} + \frac{17}{97} \sqrt{2} + \frac{44}{97} + \frac{8}{97} \sqrt{6} \right)$$

$$(ii) \left(\frac{15}{97} \sqrt{3} + \frac{17}{97} \sqrt{2} + \frac{44}{97} + \frac{8}{97} \sqrt{8} \right)$$

$$(iii) \left(\frac{15}{97} \sqrt{3} + \frac{17}{97} \sqrt{2} + \frac{44}{97} + \frac{8}{97} \sqrt{6} \right)$$

$$(iv) \left(\frac{15}{97} + \frac{17}{97} \sqrt{2} + \frac{44}{97} + \frac{8}{97} \sqrt{6} \right)$$

$$(v) \left(\frac{15}{97} \sqrt{3} + \frac{17}{97} \sqrt{2} + \frac{4}{9} + \frac{8}{97} \sqrt{6} \right)$$

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6. Rationalise the denominator of

$$\frac{1}{(-\sqrt[3]{5} + \sqrt[3]{3})}$$

$$(i) \left(-\frac{1}{2} \sqrt[3]{25} - \frac{1}{2} \sqrt[3]{15} - \frac{1}{2} \sqrt[3]{9} \right)$$

$$(ii) \left(-\frac{1}{2} \sqrt[3]{25} - \frac{1}{2} \sqrt[3]{13} - \frac{1}{2} \sqrt[3]{9} \right)$$

$$(iii) \left(-\frac{1}{2} \sqrt[3]{25} - \frac{1}{2} \sqrt[3]{17} - \frac{1}{2} \sqrt[3]{9} \right)$$

$$(iv) \left(-\frac{1}{2} \sqrt[3]{25} - \frac{1}{2} \sqrt[3]{15} - \frac{9}{2} \right)$$

$$(v) \left(-\frac{1}{2} \sqrt[3]{25} - \frac{1}{2} \sqrt[3]{15} - \frac{1}{2} \sqrt[3]{9} \right)$$

$$7. \quad 5 \sqrt{8} \div (-8 \sqrt{7}) =$$

$$(i) \left(-\frac{5}{2} \right) \quad (ii) \left(-\frac{5}{28} \sqrt{12} \right) \quad (iii) \left(-\frac{5}{28} \sqrt{14} \right) \quad (iv) \left(-\frac{5}{28} \sqrt{16} \right) \quad (v) \left(-\frac{5}{28} \sqrt[4]{14} \right)$$

$$8. \text{ The rationalising factor of } 9 \sqrt{85} =$$

$$(i) \sqrt{83} \quad (ii) 85 \quad (iii) \sqrt{87} \quad (iv) \sqrt[4]{85} \quad (v) \sqrt{85}$$

$$9. \text{ The rationalising factor of } (7 \sqrt{8} + \sqrt{5}) =$$

$$(i) (14 \sqrt{2} - \sqrt[4]{5}) \quad (ii) (14 \sqrt{2} - \sqrt{5}) \quad (iii) (14 \sqrt{-1} - \sqrt{5})$$

$$(iv) (14 \sqrt{5} - \sqrt{5}) \quad (v) (14 \sqrt{2} - 5)$$

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

$$10. \text{ Rationalise the denominator of } \frac{\quad}{\quad} =$$

$$(\sqrt{2} + \sqrt{4})$$

$$(i) \left(-1 + \frac{1}{2} \sqrt{6} + \sqrt[4]{2} - \sqrt{3} \right)$$

$$(ii) \left(-1 + \frac{1}{2} \sqrt{6} + \sqrt{2} - \sqrt{5} \right)$$

$$(iii) \left(-1 + \frac{1}{2} \sqrt[4]{6} + \sqrt{2} - \sqrt{3} \right)$$

$$(iv) \left(-1 + \frac{1}{2} \sqrt{6} + \sqrt{2} - \sqrt{3} \right)$$

$$(v) \left(-4 + \frac{1}{2} \sqrt{6} + \sqrt[4]{2} - \sqrt{3} \right)$$

$$(4\sqrt{7} - \sqrt{2})$$

11. Rationalise the denominator of _____ =

$$(5\sqrt{7} + 2\sqrt{4})$$

$$(i) \left(\frac{140}{159} - \frac{5}{159} \sqrt{14} - \frac{16}{159} \sqrt{7} + \frac{4}{159} \sqrt{2} \right)$$

$$(ii) \left(\frac{140}{159} - \frac{5}{159} \sqrt{14} - \frac{16}{159} \sqrt{7} + \frac{4}{159} \sqrt{2} \right)$$

$$(iii) \left(\frac{140}{159} - \frac{5}{159} \sqrt{14} - \frac{16}{159} \sqrt{7} + \frac{4}{159} \sqrt{4} \right)$$

$$(iv) \left(\frac{140}{159} - \frac{5}{159} \sqrt{14} - \frac{16}{159} \sqrt{7} + \frac{4}{159} \sqrt{2} \right)$$

$$(v) \left(\frac{46}{53} - \frac{5}{159} \sqrt{14} - \frac{16}{159} \sqrt{7} + \frac{4}{159} \sqrt{2} \right)$$

Assignment Key

- 1) (i)
- 2) (iv)
- 3) (i)
- 4) (ii)
- 5) (i)
- 6) (v)
- 7) (iii)
- 8) (v)
- 9) (ii)
- 10) (iv)
- 11) (iv)