

EXPONENTS AND RADICALS

1. Express in exponential form:

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

(ii) $\sqrt[6]{\frac{25^{-5}}{321}}$

2. Express with positive indices

(i) $x^{-\frac{3}{4}}$

(ii) $\frac{5}{x^{\frac{-5}{6}}}$

(iii) $\frac{1}{(2x)^{\frac{-7}{3}}}$

3. Find x if (i) $5^{\frac{1}{3}} \times 5^{\frac{1}{6}} = 5^{-x}$ (ii) $9^{x+2} = 240 + 9^x$

4. Find the value of

(i) $8^{\frac{2}{3}}$

(ii) $\frac{1}{16^{-\frac{3}{4}}}$

(iii) $3 \times 16^{-\frac{1}{2}} \times 4 \times 27^{-\frac{1}{3}}$

(iv) $\frac{9^{\frac{1}{3}} \times 27^{\frac{-1}{2}}}{3^{\frac{-1}{6}} \times 3^{\frac{-2}{3}}}$

(v) $\frac{\sqrt{x^3} \cdot \sqrt[3]{x^5}}{\sqrt[5]{x^3} \cdot \sqrt[30]{x^{77}}}$

(vi) $(x^0)^{10}$

(vii) $x^{\frac{7}{8}} \times y^{\frac{7}{8}}$

(viii) $(256)^{(-4)^{-3/2}}$

(ix) $\left[\frac{-1}{27}\right]^{-2/3}$

(x) $(x^5)^0$

(xi) $-3a^3 x^3 \div ax^3$

(xii) $(-m^{-2}n^0)^{-3}$

(xiii) $\sqrt[3]{b^2} \div b$

(xiv) $\frac{1}{\left\{\left(\frac{5}{6}\right)^{1/5}\right\}^{1/6}}$

(xv) $x^{12/7} \div x^{5/7}$

(xvi) $\left[5\left(8^{1/3} + 27^{1/3}\right)^3\right]^{1/4}$

(xvii) $\left[\left(625^{-1/2}\right)^{-1/4}\right]^2$

5. The length of a diagonal of a square is $(x + y)$. Its area is _____.

6. True/ False?

(i) $\sqrt{36} = 6$

(ii) $\sqrt{-6 \times -6} = 36$

(iii) $\sqrt{-3 \times -12} = 6$

6. Find the length of the diagonal of a square whose area is equal to the area of an equilateral triangle of side 4 m.