

INDICES – PRACTICE QUESTIONS



1.

Evaluate:

(a) 6^{-1}

(b) 4^{-1}

(c) 10^{-1}

(d) 3^{-2}

(e) 5^{-2}

(f) 2^{-3}

(g) 10^{-3}

(h) 9^{-2}

2.

Evaluate:

(a) $4^{1/2}$

(b) $9^{1/2}$

(c) $100^{1/2}$

(d) $27^{1/3}$

(e) $8^{1/3}$

(f) $64^{1/3}$

(g) $16^{1/4}$

(h) $125^{1/3}$

3.

Evaluate:

(a) $\left(\frac{1}{2}\right)^{-1}$

(b) $\left(\frac{2}{3}\right)^{-1}$

(c) $\left(\frac{5}{2}\right)^{-2}$

(d) $\left(\frac{7}{4}\right)^{-1}$

(e) $\left(\frac{6}{5}\right)^{-2}$

(f) $\left(\frac{10}{3}\right)^{-3}$

4.

Evaluate:

(a) $4^{-1/2}$

(b) $16^{-1/2}$

(c) $25^{-1/2}$

(d) $8^{-1/3}$

(e) $27^{-1/3}$

(f) $100^{-1/2}$

(g) $\left(\frac{49}{9}\right)^{-1/2}$

(h) $\left(\frac{1000}{27}\right)^{-1/3}$

5.

Evaluate:

(a) $4^{3/2}$

(b) $9^{3/2}$

(c) $100^{3/2}$

(d) $27^{2/3}$

(e) $125^{2/3}$

(f) $1000^{2/3}$

(g) $8^{4/3}$

(h) $81^{3/4}$

6.

Evaluate:

(a) $8^{-2/3}$

(b) $25^{-3/2}$

(c) $9^{-3/2}$

(d) $64^{-2/3}$

(e) $\left(\frac{1}{4}\right)^{-3/2}$

(f) $32^{-2/5}$

(g) $\left(\frac{16}{9}\right)^{-3/2}$

(h) $\left(\frac{27}{64}\right)^{-2/3}$

7.

Evaluate:

(a) 9^{-1}

(b) $16^{1/2}$

(c) $36^{-1/2}$

(d) 5^{-2}

(e) $4^{3/2}$

(f) $\left(\frac{4}{3}\right)^{-2}$

(g) $125^{1/3}$

(h) $1000^{-2/3}$

(i) $\left(\frac{81}{100}\right)^{-1/2}$

(j) 3^{-3}

(k) $64^{-2/3}$

(l) $49^{3/2}$

(m) $\left(\frac{25}{16}\right)^{-3/2}$

(n) $216^{2/3}$

(o) $10000^{3/4}$

(p) $400^{-1/2}$

(q) $900^{3/2}$

(r) $\left(\frac{144}{121}\right)^{-1/2}$

8.

Evaluate:

(a) $\left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{25}\right)^{-1/2}$

(b) $8^{2/3} \times 4^{3/2}$

(c) $\left(\frac{10}{3}\right)^{-1} - 3^{-2}$

(d) $1000^{2/3} \div 25^{1/2}$

(e) $\left(\frac{1}{125}\right)^{-2/3} + \left(\frac{1}{144}\right)^{-1/2}$

(f) $\left(\frac{64}{27}\right)^{-1/3} + \left(\frac{1}{16}\right)^{1/4}$

(g) $32^{3/5} \times 1600^{-1/2}$

9.

Find x.

$$2^x \times 2^{2x} = 64$$

10.

Find x.

$$\frac{3^x}{9} = 3^5$$

11.

Find x.

$$\frac{2^{3x+5}}{8} = 2^{2x}$$

12.

Find x.

$$\frac{8^{2x+1}}{2^x} = 4$$

13.
Find x.

$$\frac{64^{x+1}}{4^x} = 16^{2x-1}$$

14.
Find x.

$$\frac{2^{2x}}{\sqrt{32}} = \sqrt{8}$$

15.
Find x.
 $\sqrt{27} \times 3^x = 81$

16.
Find x.
 $100^{x-1} = \sqrt{1000}$