
# Rational Exponents and Radicals

# Practice Exercise

1. For a fixed base, if the exponent decreases by 1, the number becomes
   (a) one-tenth of the previous number
   (b) ten times of the previous number
   (c) hundredth of the previous number
   (d) hundred times of the previous number

2. The reciprocal of $\left(\frac{2}{5}\right)^{-1}$ is
   (a) $\frac{2}{5}$ (b) $\frac{5}{2}$
   (c) $-\frac{5}{2}$ (d) $-\frac{2}{5}$

3. The radical form of $\left(\frac{13}{25}\right)^{3/4}$ is
   (a) $\sqrt[3]{\left(\frac{13}{25}\right)^{4}}$ (b) $\sqrt[4]{\left(\frac{13}{25}\right)^{3}}$
   (c) $\sqrt[4]{\left(\frac{25}{13}\right)^{3}}$ (d) $\sqrt[3]{\left(\frac{25}{13}\right)^{4}}$

4. The value of $(-2)^{2\times 3-1}$ is
   (a) 32 (b) 64 (c) −32 (d) −64

5. $(-9)^{3} \div (-9)^{8}$ is equal to
   (a) $(9)^{5}$ (b) $(9)^{-5}$
   (c) $(-9)^{5}$ (d) $(-9)^{-5}$

6. Simplify $(4^{-1}+3^{-1}+6^{-2})^{-1}$.
   (a) $\frac{18}{11}$ (b) $\frac{11}{18}$
   (c) $\frac{19}{7}$ (d) None of these

7. The value of $\left(-\frac{1}{125}\right)^{-2/3}$ is
   (a) 5 (b) 25
   (c) −25 (d) None of these

8. The value of $\frac{5}{(121)^{-1/2}}$ is
   (a) −55 (b) $\frac{1}{55}$ (c) $-\frac{1}{55}$ (d) 55

9. The value of $(512)^{-3/9}$ is

(a) $\frac{1}{4}$ (b) 8

(c) $\frac{1}{8}$ (d) $-\frac{1}{8}$

10. The value of $3 \times 9^{-3/2} \times 9^{1/2}$ is

(a) $\frac{1}{3}$ (b) 3

(c) 27 (d) $-\frac{1}{3}$

11. The value of $(216^{2/3})^{1/2}$ is

(a) 3 (b) 9

(c) 12 (d) 6

12. The value of $27^{-1/3} \times (27^{2/3} \div 27^{1/3})$ is

(a) 4 (b) 3

(c) 2 (d) 1

13. The value of $(6.25)^{-1/2}$ is

(a) 0.25 (b) 0.5 (c) 0.4 (d) 2.5

14. Find the value of $x$, if

$\left(\frac{5}{3}\right)^{-2} \times \left(\frac{5}{3}\right)^{-14} = \left(\frac{5}{3}\right)^{8x}$.

(a) $-3$ (b) 2

(c) $-2$ (d) 1

15. The value of $(0.03125)^{-2/5}$ is

(a) 1 (b) 2

(c) 3 (d) 4

16. The value of $(x^{a-b})^c \times (x^{b-c})^a \times (x^{c-a})^b$ is

(a) 0 (b) 1

(c) $x^{ab}$ (d) $x^{bc}$

17. The value of $(12^2 + 5^2)^{1/2}$ is

(a) 11 (b) 13 (c) 12 (d) 15

18. If $9\sqrt{x} = \sqrt{12} + \sqrt{147}$, the value of $x$ is

(a) 1 (b) 2 (c) 3 (d) 4

19. Simplify $\frac{49 \times z^{-3}}{7^{-3} \times 10 \times z^{-5}}, (z \neq 0)$.

(a) $\frac{7^4}{10} z^2$ (b) $\frac{7^5}{10} z^2$

(c) $\frac{7^6}{10} z^2$ (d) None of these

20. The arrangements of the numbers $\sqrt[4]{3}, \sqrt[6]{10}, \sqrt[12]{25}$ in descending order will

(a) $\sqrt[4]{3}, \sqrt[12]{25}, \sqrt[6]{10}$ (b) $\sqrt[6]{10}, \sqrt[4]{3}, \sqrt[12]{25}$

(c) $\sqrt[4]{3}, \sqrt[6]{10}, \sqrt[12]{25}$ (d) $\sqrt[6]{10}, \sqrt[12]{25}, \sqrt[4]{3}$

21. The value of

$\left(\frac{a^x}{a^y}\right)^{x+y} \times \left(\frac{a^y}{a^z}\right)^{y+z} \times \left(\frac{a^z}{a^x}\right)^{z+x}$ is

(a) 0 (b) $\frac{1}{y}$ (c) 1 (d) $\frac{1}{xyz}$

22. The value of the expression

$\frac{\left(p+\frac{1}{q}\right)^m \times \left(p-\frac{1}{q}\right)^m}{\left(q+\frac{1}{p}\right)^m \times \left(q-\frac{1}{p}\right)^m}$ is

(a) $\left(\frac{p}{q}\right)^{2m}$ (b) $\left(\frac{p}{q}\right)^{-2m}$ (c) $(pq)^{2m}$ (d) $\left(\frac{p}{q}\right)$

23. The value of $\frac{2^{10+n} \times 4^{3n-5}}{2^{4n+1} \times 2^{3n-1}}$ is

(a) 0 (b) 1 (c) 3 (d) 4

24. The value of $\frac{(81)^{1/3} \times (576)^{1/3}}{(64)^{2/3} \times (27)^{2/3}}$ is

(a) $\frac{1}{4}$ (b) $\frac{3}{4}$

(c) $\frac{5}{8}$ (d) None of these