

N.RN.A.2: Radicals and Rational Exponents 1b

- 1 What is the value of the expression $2x^{-\frac{1}{3}}$ when $x = 8$?
- 2 If $f(x) = x^{-\frac{1}{3}}$, what is $f(64)$?
- 3 The value of $(-64)^{\frac{2}{3}}$ is
- 4 The expression $4^{\frac{1}{2}} \cdot 2^3$ is equal to
- 5 The expression $9^{\frac{3}{2}} \cdot 27^{\frac{1}{2}}$ is equivalent to
1) 3^2 2) 3^2 3) 243^2 4) 243^4
- 6 The expression $\frac{3^{\frac{1}{3}}}{3^{-\frac{2}{3}}}$ is equivalent to
- 7 The value of $\left(\frac{3^0}{27^{\frac{2}{3}}}\right)^{-1}$ is
- 8 If $f(x) = x^{-\frac{3}{2}}$, then $f\left(\frac{1}{4}\right)$ is equal to
- 9 The value of $\left(\frac{8}{27}\right)^{-\frac{2}{3}}$ is
- 10 Which number is the largest?
1) $\left(\frac{1}{4}\right)^{-1}$ 2) $\left(\frac{1}{4}\right)^0$ 3) $\left(\frac{1}{4}\right)^{\frac{1}{2}}$ 4) $\left(\frac{1}{4}\right)^2$
- 11 What is the value of $4x^{\frac{1}{2}} + x^0 + x^{-\frac{1}{4}}$ when $x = 16$?
- 12 If $x = 4$, the value of $4x^{\frac{1}{2}} + (x^0 + 3)^{-1}$ is
- 13 If $f(x) = 3x^2 + 3x^{\frac{1}{2}} + 3x$, then $f(-9)$ is equal to
- 14 If $(a^x)^{\frac{2}{3}} = \frac{1}{a^2}$, what is the value of x ?

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Answer Section

1 ANS:
1

REF: 060132siii

2 ANS:
 $\frac{1}{4}$

REF: 080116siii

3 ANS:
16

REF: 019520siii

4 ANS:
16

$$4^{\frac{1}{2}} \cdot 2^3 = \sqrt{4} \cdot 8 = 16$$

REF: 080601b

5 ANS: 2

$$9^{\frac{3}{2}} \cdot 27^{\frac{1}{2}} = \left(3^2\right)^{\frac{3}{2}} \cdot \left(3^3\right)^{\frac{1}{2}} = 3^3 \cdot 3^{\frac{3}{2}} = 3^{\frac{9}{2}}$$

REF: 011707a2

6 ANS:
3

$$\frac{3^{\frac{1}{3}}}{3^{-\frac{2}{3}}} = 3^{\frac{1}{3} - (-\frac{2}{3})} = 3^1 = 3$$

REF: 080218b

7 ANS:
9

$$\left(\frac{3^0}{27^{\frac{2}{3}}}\right)^{-1} = \frac{27^{\frac{2}{3}}}{3^0} = 3^2 = 9$$

REF: 010217b

8 ANS:

8

$$f\left(\frac{1}{4}\right) = \left(\frac{1}{4}\right)^{-\frac{3}{2}} = 4^{\frac{3}{2}} = 8$$

REF: 060602b

9 ANS:

 $\frac{9}{4}$

REF: 018922siii

10 ANS: 1

REF: 061002b

11 ANS:

 $17\frac{1}{2}$

$$\begin{aligned} f(16) &= 4(16)^{\frac{1}{2}} + 16^0 + 16^{-\frac{1}{4}} \\ &= 4(4) + 1 + \frac{1}{2} \\ &= 17\frac{1}{2} \end{aligned}$$

REF: 081503a2

12 ANS:

 $8\frac{1}{4}$

REF: 019418siii

13 ANS:

 $216 + 9i$

REF: 089431siii

14 ANS:

-3

$$a^{\frac{2x}{3}} = \frac{1}{a^2}$$

$$a^{\frac{2x}{3}} \cdot a^2 = 1$$

$$a^{\frac{2x}{3}+2} = 1$$

$$a^{\frac{2x}{3}+2} = a^0$$

$$\frac{2x}{3} + 2 = 0$$

$$\frac{2x}{3} = -2$$

$$2x = -6$$

$$x = -3$$

REF: 060516b