

N.RN.A.2: Operations with Radicals 4

1 The expression $\left(\sqrt[3]{27x^2}\right)\left(\sqrt[3]{16x^4}\right)$ is equivalent

to

- 1) $12x^2\sqrt[3]{2}$
- 2) $12x\sqrt[3]{2x}$
- 3) $6x\sqrt[3]{2x^2}$
- 4) $6x^2\sqrt[3]{2}$

2 The product of $\sqrt[3]{4m^2}$ and $\sqrt[3]{10m}$ expressed in simplest radical form is

- 1) $\sqrt[3]{40m^3}$
- 2) $2\sqrt[3]{5m^3}$
- 3) $m\sqrt[3]{40}$
- 4) $2m\sqrt[3]{5}$

3 What is the product of $\sqrt[3]{4a^2b^4}$ and $\sqrt[3]{16a^3b^2}$?

- 1) $4ab^2\sqrt[3]{a^2}$
- 2) $4a^2b^3\sqrt[3]{a}$
- 3) $8ab^2\sqrt[3]{a^2}$
- 4) $8a^2b^3\sqrt[3]{a}$

4 Simplify: $\frac{\sqrt[3]{\frac{a^2}{b}}}{\sqrt[3]{\frac{a}{b^2}}}$

5 Simplify: $\sqrt[3]{\frac{128x^6y^2}{81z^4}} \div \sqrt[3]{\frac{16x^3y^2}{3z^7}}$

6 Write $\sqrt[3]{x} \cdot \sqrt{x}$ as a single term with a rational exponent.

7 Simplify: $\sqrt{a} \times \sqrt[3]{b}$

8 Simplify: $\sqrt{a} \times \sqrt[4]{b}$

9 Simplify: $\sqrt{a^3} \times \sqrt[3]{a^2}$

10 Simplify: $\sqrt[3]{ab^2} \times \sqrt{ab^3}$

11 The expression $\sqrt[3]{27a^3} \cdot \sqrt[4]{16b^8}$ is equivalent to

- 1) $6ab^2$
- 2) $6ab^4$
- 3) $12ab^2$
- 4) $12ab^4$

12 The sum of $\sqrt[3]{6a^4b^2}$ and $\sqrt[3]{162a^4b^2}$, expressed in simplest radical form, is

- 1) $\sqrt[6]{168a^8b^4}$
- 2) $2a^2b\sqrt[3]{21a^2b}$
- 3) $4a\sqrt[3]{6ab^2}$
- 4) $10a^2b\sqrt[3]{8}$

13 Simplify: $\sqrt{\frac{1}{a}} + \sqrt[3]{\frac{1}{b}}$

N.RN.A.2: Operations with Radicals 4

Answer Section

1 ANS: 4

$$\left(\sqrt[3]{27x^2}\right)\left(\sqrt[3]{16x^4}\right) = \sqrt[3]{3^3 \cdot 2^4 \cdot x^6} = 3 \cdot 2 \cdot x^2 \sqrt[3]{2} = 6x^2 \sqrt[3]{2}$$

REF: 011421a2

2 ANS: 4

$$\sqrt[3]{4m^2} \cdot \sqrt[3]{10m} = \sqrt[3]{40m^3} = \sqrt[3]{8 \cdot 5m^3} = 2m \sqrt[3]{5}$$

REF: 081627a2

3 ANS: 1

$$\sqrt[3]{64a^5b^6} = \sqrt[3]{4^3 a^3 a^2 b^6} = 4ab^2 \sqrt[3]{a^2}$$

REF: 011516a2

4 ANS:

$$\sqrt[3]{ab}$$

REF: 019415al

5 ANS:

$$\frac{2xz}{3}$$

REF: 019811al

6 ANS:

$$\sqrt[3]{x} \cdot \sqrt{x} = x^{\frac{1}{3}} \cdot x^{\frac{1}{2}} = x^{\frac{3}{6}} \cdot x^{\frac{3}{6}} = x^{\frac{5}{6}}$$

REF: 061731aii

7 ANS:

$$\sqrt[6]{a^3b^2}$$

REF: 019713al

8 ANS:

$$\sqrt[4]{a^2b}$$

REF: 089603al

9 ANS:

$$a^2 \sqrt[6]{a}$$

REF: 119411al

10 ANS:

$$b^2 \sqrt[6]{a^5 b}$$

REF: 039413a1

11 ANS: 1

$$\sqrt[3]{27a^3} \cdot \sqrt[4]{16b^8} = 3a \cdot 2b^2 = 6ab^2$$

REF: 061504a2

12 ANS: 3

$$\sqrt[3]{6a^4 b^2} + \sqrt[3]{(27 \cdot 6)a^4 b^2}$$

$$a \sqrt[3]{6ab^2} + 3a \sqrt[3]{6ab^2}$$

$$4a \sqrt[3]{6ab^2}$$

REF: 011319a2

13 ANS:

$$\frac{b\sqrt{a} + a\sqrt[3]{b^2}}{ab}$$

REF: 089710a1