

**FoM10 - Chapter 4 PRACTICE Test - Calculator Permitted**

/ 20 **Multiple Choice:** Choose the BEST answer. Record your answer on the line.

\_\_\_\_\_ 1. Identify the index of  $\sqrt[3]{10^4}$ .

- a.  $10^4$                       b. 10                      c. 4                      d. 3

\_\_\_\_\_ 2. Evaluate  $\sqrt[3]{0.512}$ .

- a. 0.64                      b.  $0.170\bar{6}$                       c. 0.8                      d. 0.008

\_\_\_\_\_ 3. Evaluate  $\sqrt[4]{\frac{256}{625}}$ .

- a.  $\frac{16}{5}$                       b.  $\frac{16}{25}$                       c.  $\frac{4}{5}$                       d.  $\frac{4}{25}$

\_\_\_\_\_ 4. Which of these numbers is rational?

$$\sqrt{\frac{121}{49}}, \sqrt{24}, \sqrt[3]{25}, \sqrt{0.121}$$

- a.  $\sqrt{\frac{121}{49}}$                       b.  $\sqrt{0.121}$                       c.  $\sqrt{24}$                       d.  $\sqrt[3]{25}$

\_\_\_\_\_ 5. To which set(s) of numbers does  $-\sqrt{16}$  belong?

I	Natural
II	Integer
III	Rational
IV	Irrational

- a. II and III only                      b. IV only                      c. III only                      d. I, II and III only

\_\_\_\_\_ 6. Write  $5\sqrt[4]{3}$  as an entire radical.

a.  $\sqrt[4]{75}$

b.  $\sqrt[4]{1875}$

c.  $\sqrt[4]{405}$

d.  $\sqrt[4]{225}$

\_\_\_\_\_ 7. Write  $\sqrt{112}$  in simplest form.

a.  $7\sqrt{4}$

b.  $16\sqrt{7}$

c.  $4\sqrt{7}$

d.  $4\sqrt{28}$

\_\_\_\_\_ 8. Write  $\sqrt{175}$  in simplest form.

a.  $7\sqrt{5}$

b.  $25\sqrt{7}$

c.  $5\sqrt{7}$

d.  $5\sqrt{35}$

\_\_\_\_\_ 9. Order these numbers from greatest to least:  $2\sqrt{30}$ ,  $3\sqrt{3}$ ,  $2\sqrt{7}$ ,  $5\sqrt{5}$ ,  $2\sqrt{13}$

a.  $2\sqrt{13}$ ,  $2\sqrt{7}$ ,  $3\sqrt{3}$ ,  $5\sqrt{5}$ ,  $2\sqrt{30}$

c.  $5\sqrt{5}$ ,  $2\sqrt{30}$ ,  $2\sqrt{13}$ ,  $2\sqrt{7}$ ,  $3\sqrt{3}$

b.  $5\sqrt{5}$ ,  $2\sqrt{30}$ ,  $3\sqrt{3}$ ,  $2\sqrt{13}$ ,  $2\sqrt{7}$

d.  $3\sqrt{3}$ ,  $5\sqrt{5}$ ,  $2\sqrt{30}$ ,  $2\sqrt{13}$ ,  $2\sqrt{7}$

\_\_\_\_\_ 10. Write  $x^{\frac{5}{4}}$  as a radical.

a.  $(\sqrt[4]{x})^5$

b.  $\sqrt[5]{x^4}$

c.  $(\sqrt[5]{x})^4$

d.  $\sqrt[1.25]{x}$

\_\_\_\_\_ 11. Write  $\sqrt{\left(\frac{3}{2}\right)^7}$  as a power.

a.  $\left(\frac{3}{2}\right)^{-\frac{7}{2}}$

b.  $\left(\frac{3}{2}\right)^{\frac{2}{7}}$

c.  $\left(\frac{2}{3}\right)^{-\frac{2}{7}}$

d.  $\left(\frac{3}{2}\right)^{\frac{7}{2}}$

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\_\_\_\_\_ 12. A cube has volume 760 cubic inches. Write the edge length of the cube **as a power** (exponent form!).

- a.  $760^{\frac{1}{3}}$  in.      b.  $760^3$  in.      c.  $760^{-3}$  in.      d.  $\sqrt[3]{760}$  in.

\_\_\_\_\_ 13. Evaluate  $8^{-3}$ .

- a. -512      b.  $\frac{1}{512}$       c.  $2\sqrt{2}$       d.  $\frac{1}{24}$

\_\_\_\_\_ 14. Evaluate  $(-27)^{-\frac{1}{3}}$ .

- a.  $-\frac{1}{3}$       b.  $-\frac{1}{9}$       c.  $\frac{1}{9}$       d.  $\frac{1}{3}$

\_\_\_\_\_ 15. Which power with a negative exponent is equivalent to  $\frac{1}{125}$ ?

- a.  $5^{-3}$       b.  $-5^{-3}$       c.  $3^{-5}$       d.  $(-5)^3$

\_\_\_\_\_ 16. Simplify  $\frac{21p^7q^{-5}}{35pq^4}$ . Write using powers with **positive exponents**.

- a.  $\frac{p^6}{14q^9}$       b.  $\frac{3p^7}{5q^9}$       c.  $\frac{3p^6}{5q}$       d.  $\frac{3p^6}{5q^9}$

\_\_\_\_\_ 17. Simplify  $\left(4s^{\frac{1}{4}}t^{-\frac{2}{3}}\right)\left(-3s^{-\frac{5}{4}}t^{\frac{10}{3}}\right)$ .

a.  $-12st^{\frac{8}{3}}$

b.  $-\frac{12}{st^4}$

c.  $-\frac{12t^{\frac{8}{3}}}{s}$

d.  $\frac{t^{\frac{8}{3}}}{12s}$

\_\_\_\_\_ 18. Simplify  $\left(\frac{36x^2y^5}{4x^{10}y^{-3}}\right)^{\frac{1}{2}}$ .

a.  $\frac{3y^4}{x^4}$

b.  $3x^4y^4$

c.  $\frac{3y}{x^4}$

d.  $\frac{3y^4}{x^6}$

\_\_\_\_\_ 19. Evaluate  $\left(-\frac{2}{5}\right)^{\frac{5}{4}} \cdot \left(-\frac{2}{5}\right)^{\frac{3}{4}}$ .

a.  $\frac{4}{25}$

b.  $\frac{25}{4}$

c.  $\frac{2}{5}$

d.  $-\frac{4}{25}$

\_\_\_\_\_ 20. Evaluate  $(a^{-7}b^{-2})(a^6b^{-3})$  for  $a = -1$  and  $b = 2$ .

a.  $-32$

b.  $\frac{1}{32}$

c.  $64$

d.  $-\frac{1}{32}$

## FoM10 - Chapter 4 PRACTICE Test - Calculator Permitted Answer Section

### MULTIPLE CHOICE

1. ANS: D                      PTS: 1                      DIF: Easy                      REF: 4.1 Estimating Roots  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Procedural Knowledge
2. ANS: C                      PTS: 1                      DIF: Easy                      REF: 4.1 Estimating Roots  
LOC: 10.AN1                TOP: Algebra and Number                KEY: Conceptual Understanding
3. ANS: C                      PTS: 1                      DIF: Easy                      REF: 4.1 Estimating Roots  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
4. ANS: A                      PTS: 1                      DIF: Easy                      REF: 4.2 Irrational Numbers  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Procedural Knowledge
5. ANS: A                      PTS: 1                      DIF: Easy                      REF: 4.2 Irrational Numbers  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
6. ANS: B                      PTS: 1                      DIF: Easy                      REF: 4.3 Mixed and Entire Radicals  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
7. ANS: C                      PTS: 1                      DIF: Easy                      REF: 4.3 Mixed and Entire Radicals  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
8. ANS: C                      PTS: 1                      DIF: Easy                      REF: 4.3 Mixed and Entire Radicals  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
9. ANS: C                      PTS: 1                      DIF: Moderate                REF: 4.3 Mixed and Entire Radicals  
LOC: 10.AN2                TOP: Algebra and Number                KEY: Conceptual Understanding
10. ANS: A                      PTS: 1                      DIF: Easy  
REF: 4.4 Fractional Exponents and Radicals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
11. ANS: D                      PTS: 1                      DIF: Easy  
REF: 4.4 Fractional Exponents and Radicals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
12. ANS: A                      PTS: 1                      DIF: Easy  
REF: 4.4 Fractional Exponents and Radicals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
13. ANS: B                      PTS: 1                      DIF: Easy  
REF: 4.5 Negative Exponents and Reciprocals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
14. ANS: A                      PTS: 1                      DIF: Easy  
REF: 4.5 Negative Exponents and Reciprocals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
15. ANS: A                      PTS: 1                      DIF: Easy  
REF: 4.5 Negative Exponents and Reciprocals                      LOC: 10.AN3  
TOP: Algebra and Number                      KEY: Conceptual Understanding
16. ANS: D                      PTS: 1                      DIF: Easy                      REF: 4.6 Applying the Exponent Laws  
LOC: 10.AN3                TOP: Algebra and Number                KEY: Conceptual Understanding
17. ANS: C                      PTS: 1                      DIF: Moderate                REF: 4.6 Applying the Exponent Laws  
LOC: 10.AN3                TOP: Algebra and Number                KEY: Conceptual Understanding
18. ANS: A                      PTS: 1                      DIF: Moderate                REF: 4.6 Applying the Exponent Laws  
LOC: 10.AN3                TOP: Algebra and Number                KEY: Conceptual Understanding

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|-----|-------------|-------------------------|-----------|-------------------------------------|
| 19. | ANS: A      | PTS: 1                  | DIF: Easy | REF: 4.6 Applying the Exponent Laws |
|     | LOC: 10.AN3 | TOP: Algebra and Number |           | KEY: Conceptual Understanding       |
| 20. | ANS: D      | PTS: 1                  | DIF: Easy | REF: 4.6 Applying the Exponent Laws |
|     | LOC: 10.AN3 | TOP: Algebra and Number |           | KEY: Conceptual Understanding       |