

Date Completed: _____

Mentor Initials: _____

A mentor can change everything.



Exponents and Radicals (Basic)

Multiple Choice

- Which of the following expressions is equivalent to $a^{3/4}$?
A) $\sqrt[4]{a}$
B) $\sqrt[3]{a}$
C) $a\sqrt[3]{a}$
D) $\sqrt[4]{a^3}$
- $3x^6 \cdot 5x^7$ is equivalent to:
A) $8x^2$
B) $8x^{13}$
C) $8x^{42}$
D) $15x^{13}$
- Which of the following is equivalent to $a^{4/3}$?
A) $\sqrt[4]{a}$
B) $\sqrt[3]{a}$
C) $a\sqrt[3]{a}$
D) $\sqrt[4]{a^3}$
- Given $m = 20n^4 + 40$, which of the following is an expression for n in terms of m ?
A) $(\frac{m}{20} + 2)^{\frac{1}{4}}$
B) $(\frac{m}{20} - 2)^{\frac{1}{4}}$
C) $m^4 + 2$
D) $20m^4 + 40$
- Which of the following is equivalent to $(36x^2)^{\frac{1}{2}}$?
A) $6|x|$
B) $6x$
C) $18|x|$
D) $\sqrt{18x}$

6. For all $b \neq 0$, $\frac{b^{10}}{b^5}$ is equivalent to:

- A) 1
- B) b^2
- C) b^5
- D) b^{15}

7. $4x^0 \cdot 3x^{-7}$ is equivalent to:

- A) $\frac{3}{x^7}$
- B) $\frac{7}{x^7}$
- C) 7
- D) $\frac{12}{x^7}$

8. Which of the following is equivalent to $\sqrt{s} * s^{\frac{2}{3}}$?

- A) $s^{\frac{1}{3}}$
- B) $s^{\frac{2}{3}}$
- C) $s^{\frac{3}{5}}$
- D) $s^{\frac{7}{6}}$

9. Which of the following is equivalent to the sum of the

$4a^2 + a$ and $2a^{\frac{1}{2}} + 3a$?

- A) $4a^2 + 4a$
- B) $4a^2 + 2\sqrt{a} + 4a$
- C) $4a^2 + 4a + \sqrt{2a}$
- D) $16a^2 + 4a + \sqrt{2a}$

10. $(4x^4 - 3x)(x^4 + 5x)$

Which of the following is equivalent to the expression above?

- A) $3x^4 - 8x$
- B) $5x^4 + 2x$
- C) $4x^8 - 15x^2$
- D) $4x^8 + 17x^5 - 15x^2$

Grid-In

11. Which value of y makes the equation below true?

$$\frac{16^y}{4^2} = 4^6$$

12. If $\frac{12^3}{6^3} = 4 + x$, what is the value of x ?

13. If $\sqrt{x} + \sqrt{16} = \sqrt{81}$, what is the value of x ?

14. If $\frac{n^9}{n^6} = 27$, what is the value of n ?

15. For what value of c is the equation $3^{3c+6} = 3^{18}$ true?