

Brett Robbins Academic Consulting

Mathematics 10C Practice Test

Unit 2: Roots and Powers

25 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

When written as a single power, $3^2 \cdot 3^5$ is equal to

- | | |
|-------------|----------|
| A) 3^{10} | B) 3^7 |
| C) 9^7 | D) 3^3 |

Question 2

The value of $(-2)^4$ is

- | | |
|-------|--------|
| A) 16 | B) -16 |
| C) 8 | D) -8 |

Question 3

When written as a single power, $\frac{7^9}{7^4}$ is equal to

- | | |
|-------------|----------|
| A) 7^{13} | B) 7^4 |
| C) 7^{36} | D) 7^5 |

Question 4

The value of 12^0 is

- | | |
|------|--------|
| A) 0 | B) 12 |
| C) 1 | D) 120 |

Question 5

When written as a mixed radical in simplest form, $\sqrt{50}$ is equal to

- | | |
|-----------------|-----------------|
| A) $5\sqrt{2}$ | B) $2\sqrt{5}$ |
| C) $25\sqrt{2}$ | D) $5\sqrt{10}$ |

Question 6

The value of 5^{-2} is

A) -25

B) -10

C) 25

D) $\frac{1}{25}$

Question 7

The value of $16^{3/4}$ is

A) 12

B) 8

C) 64

D) 4

Question 8

When simplified, $(3x^2)^3$ is equal to

A) $9x^6$

B) $27x^5$

C) $27x^6$

D) $3x^6$

Question 9

If $2^x = 128$, then the value of x is ____.

Question 10

When written in radical form, $x^{5/3}$ is equal to

A) $\sqrt[3]{x^5}$

B) $\sqrt[5]{x^3}$

C) $\sqrt{x^3}$

D) $(\sqrt[3]{x^5})^2$

Question 11

When simplified, $\frac{(a^4)^3}{a^5}$ is equal to

A) a^{12}

B) a^7

C) a^{17}

D) a^2

Question 12

The value of $81^{3/4}$ is ____.

Question 13

When written as an entire radical, $4\sqrt{3}$ is equal to

A) $\sqrt{12}$

B) $\sqrt{24}$

C) $\sqrt{48}$

D) $\sqrt{36}$

Question 14

When written as a mixed radical in simplest form, $\sqrt{200}$ is equal to

A) $5\sqrt{2}$

B) $2\sqrt{10}$

C) $100\sqrt{2}$

D) $10\sqrt{2}$

Question 15

A bacteria culture starts with 300 bacteria, and the number of bacteria doubles every hour. The number of bacteria after 5 hours is ____.

Question 16

The value of $(\frac{2}{3})^{-2}$ is

- A) $\frac{9}{4}$
B) $\frac{4}{9}$
C) $-\frac{9}{4}$
D) $\frac{4}{6}$

Question 17

If $x^{1/3} = 5$, then the value of x is ____.

Question 18

The numbers 4, $3\sqrt{2}$, $\sqrt{19}$, and $2\sqrt{5}$, written in increasing order, are

- A) $2\sqrt{5}$, $\sqrt{19}$, $3\sqrt{2}$, 4
B) 4, $3\sqrt{2}$, $\sqrt{19}$, $2\sqrt{5}$
C) 4, $\sqrt{19}$, $3\sqrt{2}$, $2\sqrt{5}$
D) $3\sqrt{2}$, 4, $\sqrt{19}$, $2\sqrt{5}$

Question 19

When simplified and written with positive exponents, $\frac{6x^4y^{-2}}{3x^{-1}y^3}$ is equal to

- A) $\frac{2x^3}{y^5}$ B) $\frac{2x^5}{y}$
C) $\frac{2x^5}{y^3}$ D) $2x^5y^5$

Question 20

The value of $\left(\frac{8}{27}\right)^{-1/3}$ is _____.

Question 21

The value of $\sqrt[3]{-64}$ is

- A) 4
B) -8
C) 8
D) -4

Question 22

The value of $(2^3 \cdot 2^{-5})^{-1}$ is ____.

Question 23

When written as a power, $\sqrt[4]{y^3}$ is equal to

- A) $y^{4/3}$
B) $y^{3/4}$
C) y^{12}
D) y^7

Question 24

The value of $32^{2/5}$ is ____.

Question 25

When simplified and written with positive exponents, $\frac{(2x^{-2}y^3)^2}{4xy^{-1}}$ is equal to

- A) $\frac{y^7}{x^5}$
B) $\frac{y^6}{x^5}$
C) $\frac{y^7}{x^3}$
D) $\frac{xy^7}{1}$

Answer Key

- | | | |
|------|----------|---------|
| 1. B | 10. A | 19. C |
| 2. A | 11. B | 20. 1.5 |
| 3. D | 12. 27 | 21. D |
| 4. C | 13. C | 22. 4 |
| 5. A | 14. D | 23. B |
| 6. D | 15. 9600 | 24. 4 |
| 7. B | 16. A | 25. A |
| 8. C | 17. 125 | |
| 9. 7 | 18. B | |

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