

Brett Robbins Academic Consulting

Mathematics 20-1 Practice Test

Unit 4: Radicals

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

The simplified form of $\sqrt{72}$ is

- A) $6\sqrt{2}$ B) $3\sqrt{6}$
C) $12\sqrt{2}$ D) $\sqrt{70}$

Question 2

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

- A) $\sqrt{12}$
B) $\sqrt{48}$
C) $\sqrt{36}$
D) $\sqrt{144}$

Question 3

The simplified form of $\sqrt{12} + \sqrt{27}$ is

- A) $\sqrt{39}$ B) $5\sqrt{6}$
C) $5\sqrt{3}$ D) $6\sqrt{3}$

Question 4

For the expression $\sqrt{2x-6}$ to represent a real number, the restriction on x is

- A) $x \geq 0$
B) $x \leq 3$
C) $x > 3$
D) $x \geq 3$

Question 5

When $\sqrt{200}$ is written in simplest form as $a\sqrt{b}$, where a and b are integers, the value of $a + b$ is

Question 6

The simplified form of $\sqrt{10} \cdot \sqrt{15}$ is

A) $5\sqrt{6}$

B) $6\sqrt{5}$

C) $5\sqrt{30}$

D) 15

Question 7

The expression $3\sqrt{20} - 2\sqrt{45} + \sqrt{5}$ simplifies to

A) $7\sqrt{5}$

B) $\sqrt{5}$

C) 0

D) $5\sqrt{5}$

Question 8

When $\frac{7}{\sqrt{5}}$ is rationalized, the result is

A) $7\sqrt{5}$

B) $\frac{\sqrt{35}}{5}$

C) $\frac{7\sqrt{5}}{5}$

D) $\frac{7}{5}$

Question 9

The simplified form of $\sqrt[3]{54}$ is

A) $2\sqrt[3]{3}$

B) $3\sqrt[3]{6}$

C) $9\sqrt[3]{2}$

D) $3\sqrt[3]{2}$

Question 10

The value of x that satisfies $\sqrt{x+7} = 5$ is

Question 11

The product $(2\sqrt{3})(3\sqrt{6})$, in simplest form, is

A) $18\sqrt{2}$

B) 36

C) $6\sqrt{6}$

D) $18\sqrt{3}$

Question 12

The expanded form of $(\sqrt{5} + 2)(\sqrt{5} - 3)$ is

A) $-1 + \sqrt{5}$

B) $-1 - \sqrt{5}$

C) $1 - \sqrt{5}$

D) $-11 - \sqrt{5}$

Question 13

When the denominator of $\frac{4}{\sqrt{7}-2}$ is rationalized, the result is

A) $4\sqrt{7} + 2$

B) $\frac{\sqrt{7}+2}{3}$

C) $\frac{4(\sqrt{7}+2)}{3}$

D) $\frac{4(\sqrt{7}-2)}{3}$

Question 14

The equation $\sqrt{3x-2} = x-2$ has one extraneous root.

The value of the valid solution is

Question 15

For $x \geq 0$, the simplified form of $\sqrt{50x^3}$ is

A) $25x\sqrt{2x}$

B) $5x\sqrt{2x}$

C) $5x^2\sqrt{2x}$

D) $10x\sqrt{x}$

Question 16

The value of $\sqrt[3]{16} \cdot \sqrt[3]{4}$ is

A) 4

B) $2\sqrt[3]{4}$

C) 8

D) 64

Question 17

The value of x in the equation $\sqrt{x} + 6 = x$ is

Question 18

When the equation $\sqrt{x+2} = x$ is solved by squaring, one value obtained is extraneous. The extraneous value is

A) 2

B) -1

C) Both 2 and -1

D) Neither 2 nor -1

Question 19

The simplified value of $\frac{\sqrt{18} + \sqrt{8}}{\sqrt{2}}$ is

A) $\sqrt{13}$

B) $5\sqrt{2}$

C) 5

D) 10

Question 20

The value of $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2})$ is

Question 21

When the denominator of $\frac{6}{3-\sqrt{3}}$ is rationalized, the result is

A) $3 - \sqrt{3}$

B) $2 + \sqrt{3}$

C) $9 + 3\sqrt{3}$

D) $3 + \sqrt{3}$

Question 22

Of the following values, the greatest is

A) $3\sqrt{5}$

B) $2\sqrt{11}$

C) $4\sqrt{4}$

D) $\sqrt{65}$

Question 23

The value of x that satisfies $\sqrt{3x+1} = \sqrt{2x+9}$ is

Question 24

For $a \geq 0$, the simplified form of $\sqrt{72a^5}$ is

A) $6a^2\sqrt{2a}$

B) $6a^3\sqrt{2a}$

C) $36a^2\sqrt{a}$

D) $8a^2\sqrt{9a}$

Question 25

The equation $\sqrt{x-1} = x-7$ has one extraneous root.

The value of the valid solution is

Answer Key

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

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