ARKANSAS ALGEBRA II · FINAL EXAM · 50 QUESTIONS

Final Exam — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The domain of $f(x) = \sqrt{2x - 10}$ is**

- A all real numbers
- B $x > 5$
- C $x \geq 5$
- D $x < 5$

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2 **The factored form of $x^2 - 7x + 12$ is**

- A $(x - 3)(x - 4)$
- B $(x - 2)(x - 6)$
- C $(x + 3)(x + 4)$
- D $(x - 12)(x - 1)$

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3 **The value of $\log_2 64$ is**

A 6

B 8

C 32

D 4

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4 **The data set is 3, 7, 9, 12, 15, 20. The median is**

A 10.5

B 9

C 12

D 11

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5 **The range of $f(x) = x^2 - 4$ is**

- **A** $y \leq -4$
- **B** $y > -4$
- **C** $y \geq -4$
- **D** $y \geq 4$

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6 **If $f(x) = x^3 - 2x^2 + 3x - 4$, then $f(2)$ is**

- **A** 2
- **B** -2
- **C** 6
- **D** 10

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7 **The value of $\log_{10} 1000$ is**

A 10

B 3

C 100

D 4

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8 **A data set has mean 100 and standard deviation 15. The z score of the value 130 is**

A 30

B 2

C 15

D 1

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9 **The inverse of f(x) = 4x + 3 is**

A $f^{-1}(x) = \frac{x + 3}{4}$

B $f^{-1}(x) = \frac{x - 3}{4}$

C $f^{-1}(x) = 4x - 3$

D $f^{-1}(x) = \frac{x}{4} + 3$

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10 **For f(x) = -x³ + 2x, as x approaches positive infinity, the value of f(x) approaches**

A positive infinity

B 0

C 2

D negative infinity

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11 For any angle θ, $\sin^2 \theta + \cos^2 \theta$ equals

- A 1
- B 0
- C 2
- D θ

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12 The slope of the regression line $y = 2x + 3$ is

- A 2
- B 3
- C $\frac{2}{3}$
- D 5

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13 **Let $f(x) = 2x + 1$ for $x < 0$ and $f(x) = x^2 + 3$ for $x \geq 0$. The value of $f(-2) + f(3)$ is**

- A 6
- B 12
- C 15
- D 9

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14 **The graph of $y = \frac{x^2 - 4}{x - 2}$ has a hole at x equal to**

- A -2
- B 4
- C 2
- D 0

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15 **The value of $\log_{10} 100 + \log_{10} 10$ is**

- A 2
- B 10
- C 1000
- D 3

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16 **Which sample best represents all students in a school?**

- A Only students in one class
- B Only students who volunteer
- C Only students on one team
- D A random sample of all students

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17 **Which statement about the relation {(2, 5), (3, 6), (2, 7)} is true?**

- A It is a function because it has three pairs
- B It is a function because every output is different
- C It is not a function because 3 has two outputs
- D It is not a function because 2 has two outputs

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18 **The product of the roots of $x^2 + 6x + 8 = 0$ is**

- A -6
- B 8
- C -8
- D 6

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19 **A sample starts at 800 grams and halves every 2 days After 6 days, the sample is, in grams**

- A 400
- B 200
- C 50
- D 100

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20 **A data set has mean 20. A new value of 20 is added The new mean is**

- A 21
- B 19
- C 40
- D 20

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21 A linear function passes through (2, 5) and (6, 17). Its slope is

- **A** 3
- **B** 4
- **C** $\frac{1}{3}$
- **D** 12

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22 The factored form of $x^3 - 8$ is

- **A** $(x - 2)(x^2 + 2x + 4)$
- **B** $(x - 2)(x^2 - 2x + 4)$
- **C** $(x + 2)(x^2 + 2x + 4)$
- **D** $(x - 8)(x^2 + 8)$

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23 The value of tan 45° is

- A 0
- B $\sqrt{3}$
- C 1
- D $\frac{1}{2}$

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24 Two fair dice are rolled The probability the sum is 7 is

- A $\frac{1}{12}$
- B $\frac{5}{36}$
- C $\frac{1}{6}$
- D $\frac{7}{36}$

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25 **If $f(x) = x^2 + 1$, then the positive solution of $f(x) = 26$ is**

ANSWER _____

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26 **If $f(x) = x^2 - 4x + 7$, then $f(3)$ is**

A 4

B 10

C -2

D 16

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27 The solution of $10^x = 10000$ is

- A 3
- B 4
- C 5
- D 1000

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28 In a survey, 120 out of 300 people choose option A The fraction who choose option A is

- A $\frac{1}{3}$
- B $\frac{2}{5}$
- C $\frac{3}{5}$
- D $\frac{1}{2}$

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29 The domain of $y = f(x)$ is $-1 \leq x \leq 6$. The domain of $y = f(x - 2)$ is

- A $-3 \leq x \leq 4$
- B $-1 \leq x \leq 6$
- C $1 \leq x \leq 8$
- D $3 \leq x \leq 10$

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30 The expanded form of $(2x - 3)(x + 4)$ is

- A $2x^2 - 5x - 12$
- B $2x^2 + 12x - 3$
- C $2x^2 - 12$
- D $2x^2 + 5x - 12$

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31 **The solution of $4^x = 64$ is**

- A 3
- B 16
- C 4
- D 8

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32 **The data set is 4, 9, 14, 19, 24. The mean is**

- A 14
- B 12
- C 19
- D 70

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33 **If $g(x) = x^2 + 4x - 5$, then $g(2)$ is**

- A 3
- B 7
- C 17
- D -1

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34 **The factored form of $x^2 + 8x + 15$ is**

- A $(x + 1)(x + 15)$
- B $(x + 3)(x + 5)$
- C $(x - 3)(x - 5)$
- D $(x + 5)(x - 3)$

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35 The solution of $6^x = 36$ is

- A 6
- B 3
- C 12
- D 2

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36 The data set is 7, 18, 29, 40, 51. The range is

- A 51
- B 7
- C 22
- D 44

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37 The range of $f(x) = -x^2 + 3$ is

- A $y \leq 3$
- B $y \geq 3$
- C $y > 3$
- D $y \leq -3$

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38 The degree of $5x^6 - 2x^4 + 9$ is

- A 6
- B 5
- C 2
- D 3

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39 **The amplitude of y = 5cos x is**

A 1

B 10

C 5

D 2

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40 **A correlation coefficient of 0.85 describes a**

A Weak negative relationship

B No relationship

C Strong positive relationship

D Weak positive relationship

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41 Given $f(x) = x + 3$ and $g(x) = 2x - 4$, the value of $(f \circ g)(5)$ is

- **A** 13
- **B** 9
- **C** 6
- **D** 11

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42 The horizontal asymptote of $y = \frac{3x - 2}{2x + 5}$ is

- **A** $y = 3$
- **B** $y = 2$
- **C** $y = \frac{2}{3}$
- **D** $y = \frac{3}{2}$

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43 **A population starts at 100 and doubles every 4 hours After 12 hours, the population is**

A 300

B 400

C 800

D 1600

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44 **In a data set, the first quartile is 30 and the third quartile is 72. The interquartile range is**

A 102

B 30

C 42

D 72

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45 The y -intercept of $y = 5x - 8$ is

- A -8
- B 5
- C 8
- D $\frac{8}{5}$

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46 The product of the roots of $x^2 - 2x - 24 = 0$ is

- A 24
- B -2
- C -24
- D 2

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47 **The solution of $2^x = 64$ is _____**

ANSWER _____

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48 **The mean of 8, 16, 24, 32 is _____**

ANSWER _____

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49 **A linear function passes through (0, 3) and (4, 11). Its slope is**

A 4

B 3

C 8

D 2

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50 **The number of distinct real solutions of $x^2 - 6x + 9 = 0$ is**

A 2

B 0

C 1

D 9

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ANSWER KEY

1. C
2. A
3. A
4. A
5. D
6. A
7. B
8. B
9. B
10. D
11. A
12. A
13. D
14. C
15. D
16. D
17. D
18. B
19. D
20. D
21. A
22. A
23. C
24. C
25. 5
26. A
27. B
28. B
29. C
30. D
31. A
32. A
33. B
34. B
35. D
36. D
37. A
38. A
39. C
40. C
41. B
42. D
43. C
44. C
45. A
46. C
47. 6
48. 20
49. D
50. C

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