MISSOURI ALGEBRA 2 · FINAL EXAM · 50 QUESTIONS

Final Exam, Practice final exam (50 questions) — 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

If f(x) = 3x - 7, then f(-2) is

Question 1

If $f(x) = 3x - 7$, then $f(-2)$ is

A) -13

B) 13

C) 1

D) -1

A -13

B 13

C 1

D -1

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2 The leading coefficient of -2x⁴ + 5x² - x + 7 is

Question 2

The leading coefficient of $-2x^4 + 5x^2 - x + 7$ is

A) −2

B) 4

C) 7

D) 5

A -2

B 4

C 7

D 5

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3 The value of $\log_3 81$ is

Question 3

The value of $\log_3 81$ is

A) 9

B) 4

C) 27

D) 3

A 9

B 4

C 27

D 3

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4 The median of 3, 5, 7, 9, 11 is

Question 4

The median of 3, 5, 7, 9, 11 is

A) 9

B) 7

C) 11

D) 5

A 9

B 7

C 11

D 5

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5 The domain of f(x) = 1/x + 2 is

Question 5

The domain of $f(x)=\frac{1}{x+2}$ is

A) $x \neq -2$

B) all real numbers

C) $x \neq 2$

D) $x \geq -2$

A all real numbers

B x ≠ 2

C x ≠ -2

D x ≥ -2

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6 A factored form of x² + 5x + 6 is

Question 6

A factored form of $x^2 + 5x + 6$ is

A) $(x - 2)(x + 3)$

B) $(x + 1)(x + 6)$

C) $(x - 2)(x - 3)$

D) $(x + 2)(x + 3)$

A (x - 2)(x + 3)

B (x + 1)(x + 6)

C (x - 2)(x - 3)

D (x + 2)(x + 3)

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7 The solution of $\log_2 x = 4$ is

Question 7

The solution of $\log_2 x = 4$ is

A) 8

B) 16

C) 2

D) 64

A 8

B 16

C 2

D 64

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8

In a normal distribution with mean 100 and standard deviation 15, about what percent of values lie within one standard deviation of the mean?

Question 8

In a normal distribution with mean 100 and standard deviation 15, about what percent of values lie within one standard deviation of the mean?

A) 68%

B) 95%

C) 99.7%

D) 50%

A 68%

B 95%

C 99.7%

D 50%

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9 The inverse of f(x) = 5x - 10 is

Question 9

The inverse of $f(x) = 5x - 10$ is

A) $f^{-1}(x) = \frac{x+10}{5}$

B) $f^{-1}(x) = 5x + 10$

C) $f^{-1}(x) = \frac{x}{5} - 10$

D) $f^{-1}(x) = \frac{x-10}{5}$

A $f^{-1}(x) = x + 10/5$

B $f^{-1}(x) = 5x + 10$

C $f^{-1}(x) = x/5 - 10$

D $f^{-1}(x) = x - 10/5$

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10 For $(x - 2)^2(x + 1)$, the multiplicity of the zero 2 is

Question 10

For $(x - 2)^2(x + 1)$, the multiplicity of the zero 2 is

A) 2

B) 3

C) 0

D) 1

A 2

B 3

C 0

D 1

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11

A sample of 800 grams has a half-life of 10 years. After 20 years, the mass remaining, in grams, is

Question 11

A sample of 800 grams has a half – life of 10 years. After 20 years, the mass remaining, in grams, is

A) 100

B) 600

C) 400

D) 200

A 100

B 600

C 400

D 200

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12 The probability of drawing a red card from a standard 52-card deck is

Question 12

The probability of drawing a red card from a standard 52 −card deck is

A) $\frac{1}{4}$

B) $\frac{1}{2}$

C) $\frac{1}{13}$

D) $\frac{3}{4}$

A 1/4

B 1/2

C 1/13

D 3/4

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13

Given f(x) = x + 3 and g(x) = 2x - 1, the value of (g ° f)(2) is

Question 13

Given $f(x) = x + 3$ and $g(x) = 2x - 1$, the value of $(g \circ f)(2)$ is

A) 9

B) 7

C) 5

D) 11

A 9

B 7

C 5

D 11

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14 The graph of y = x² - 4/x - 2 has a hole at

Question 14

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

A) $x = -2$

B) $x = 2$

C) $x = 4$

D) $y = 2$

A x = -2

B x = 2

C x = 4

D y = 2

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15 The exact value of tan(π/4) is

Question 15

The exact value of $\tan\left(\frac{\pi}{4}\right)$ is

A) $\frac{\sqrt{3}}{3}$

B) $\sqrt{3}$

C) 1

D) 0

A $\sqrt{3}/3$

B $\sqrt{3}$

C 1

D 0

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16 The number of combinations of 3 students chosen from 8 is

Question 16

The number of combinations of 3 students chosen from 8 is

A) 168

B) 24

C) 56

D) 336

A 168

B 24

C 56

D 336

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17 The average rate of change of f(x) = x² on the interval 1 ≤ x ≤ 4 is

Question 17

The average rate of change of $f(x) = x^2$ on the interval $1 \leq x \leq 4$ is

A) 6

B) 5

C) 15

D) 4

- **A** 6
- **B** 5
- **C** 15
- **D** 4

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18 The solution of x/x - 1 = 2 is

Question 18

The solution of $\frac{x}{x-1} = 2$ is

A) $x = -1$

B) $x = 1$

C) $x = -2$

D) $x = 2$

A x = -1

B x = 1

C x = -2

D x = 2

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19 The amplitude of y = 3cos x + 1 is

Question 19

The amplitude of $y = 3\cos x + 1$ is

A) 4

B) 3

C) 2

D) 1

A 4

B 3

C 2

D 1

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20

Which correlation coefficient shows the strongest linear relationship?

Question 20

Which correlation coefficient shows the strongest linear relationship?

A) −0.30

B) 0.45

C) −0.92

D) 0.85

A -0.30

B 0.45

C -0.92

D 0.85

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21 The x-intercept of y = 2x - 6 is

Question 21

The x –intercept of $y = 2x - 6$ is

A) –3

B) 6

C) 3

D) –6

A -3

B 6

C 3

D -6

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22 The zeros of x² + 4 are

Question 22

The zeros of $x^2 + 4$ are

A) $4, -4$

B) none

C) $2, -2$

D) $2i, -2i$

A 4, -4

B none

C 2, -2

D 2i, -2i

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23 The number of solutions of sin x = 1/2 on 0 ≤ x < 2π is

Question 23

The number of solutions of $\sin x = \frac{1}{2}$ on $0 \leq x < 2\pi$ is

ANSWER

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24

A bag has 3 red marbles and 5 blue marbles. The probability of drawing a blue marble is

Question 24

A bag has 3 red marbles and 5 blue marbles. The probability of drawing a blue marble is

A) $\frac{5}{8}$

B) $\frac{5}{3}$

C) $\frac{3}{5}$

D) $\frac{3}{8}$

A 5/8

B 5/3

C 3/5

D 3/8

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25 Compared to the graph of y = f(x), the graph of y = -2f(x) has been

Question 25

Compared to the graph of $y = f(x)$, the graph of $y = -2f(x)$ has been

A) reflected in the x −axis and vertically compressed by a factor of 2

B) reflected in the y −axis and vertically stretched by a factor of 2

C) vertically stretched by a factor of 2 only

D) reflected in the x −axis and vertically stretched by a factor of 2

A reflected in the x-axis and vertically compressed by a factor of 2

B reflected in the y-axis and vertically stretched by a factor of 2

C vertically stretched by a factor of 2 only

D reflected in the x-axis and vertically stretched by a factor of 2

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26 The horizontal asymptote of y = 3x + 1/x² + 2 is

Question 26

The horizontal asymptote of $y = \frac{3x+1}{x^2+2}$ is

A) $y = 1$

B) none

C) $y = 3$

D) $y = 0$

A y = 1

B none

C y = 3

D y = 0

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27 An item worth 20000 dollars loses 10% of its value each year. After 2 years, its value, in dollars, is

Question 27

An item worth 20000 dollars loses 10% of its value each year. After 2 years, its value, in dollars, is

ANSWER

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28 A fair die is rolled twice. The probability that both rolls are even is

Question 28

A fair die is rolled twice. The probability that both rolls are even is

A) $\frac{1}{6}$

B) $\frac{1}{4}$

C) $\frac{1}{2}$

D) $\frac{1}{3}$

A 1/6

B 1/4

C 1/2

D 1/3

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29 The larger zero of y = x² - 5x + 6 is

Question 29

The larger zero of $y = x^2 - 5x + 6$ is

A) 6

B) 1

C) 2

D) 3

A 6

B 1

C 2

D 3

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30 The solution of x + 3/x = 2 is

Question 30

The solution of $\frac{x+3}{x} = 2$ is

A) $x = -3$

B) $x = 3$

C) $x = 6$

D) $x = 1$

A x = -3

B x = 3

C x = 6

D x = 1

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31 The value of 2^5 is

Question 31

The value of 2^5 is

A) 10

B) 25

C) 32

D) 64

A 10

B 25

C 32

D 64

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32 The mean of 5, 10, 15 is

Question 32

The mean of 5, 10, 15 is

A) 5

B) 15

C) 10

D) 20

A 5

B 15

C 10

D 20

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33 The domain of f(x) = 1/2x - 6 is

Question 33

The domain of $f(x) = \frac{1}{2x-6}$ is

A) $x \neq -3$

B) $x \neq 3$

C) all real numbers

D) $x \neq 6$

A x ≠ -3

B x ≠ 3

C all real numbers

D x ≠ 6

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34 If f(x) = 2x³ - x² + 4, then the remainder when f(x) is divided by x - 1 is

Question 34

If $f(x) = 2x^3 - x^2 + 4$, then the remainder when $f(x)$ is divided by $x - 1$ is

A) 5

B) 1

C) 7

D) 3

A 5

B 1

C 7

D 3

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35 The expression log x + log y is equivalent to

Question 35

The expression $\log\ x\ +\ \log\ y$ is equivalent to

A) $\log\ x\ \cdot\ \log\ y$

B) $\log(x\ +\ y)$

C) $\log(xy)$

D) $\log\left(\frac{x}{y}\right)$

A log x · log y

B log(x + y)

C log(xy)

D log(x/y)

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36

In a normal distribution, about what percent of values lie within two standard deviations of the mean?

Question 36

In a normal distribution, about what percent of values lie within two standard deviations of the mean?

A) 99.7%

B) 68%

C) 50%

D) 95%

A 99.7%

B 68%

C 50%

D 95%

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37 Given f(x) = x - 4 and g(x) = 3x, the value of (f ° g)(2) is

Question 37

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

A) 2

B) 10

C) −2

D) 6

A 2

B 10

C -2

D 6

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38 The horizontal asymptote of y = 5x² - 1/2x² + 3 is

Question 38

The horizontal asymptote of $y = \frac{5x^2 - 1}{2x^2 + 3}$ is

A) $y = 5$

B) $y = 2$

C) $y = \frac{5}{2}$

D) $y = \frac{2}{5}$

A y = 5

B y = 2

C y = 5/2

D y = 2/5

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39 A bank balance of 1000 dollars grows by 5% each year. After 2 years, the balance, in dollars, is

Question 39

A bank balance of 1000 dollars grows by 5% each year. After 2 years, the balance, in dollars, is

ANSWER

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40

The probability of drawing a face card (jack, queen, or king) from a standard 52-card deck is

Question 40

The probability of drawing a face card (jack, queen, or king) from a standard 52 −card deck is

A) $\frac{1}{4}$

B) $\frac{1}{2}$

C) $\frac{1}{13}$

D) $\frac{3}{13}$

A 1/4

B 1/2

C 1/13

D 3/13

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41

The point (6, 3) lies on the graph of y = f(x). The image of this point on the graph of y = f(2x) is

Question 41

The point $(6,\ 3)$ lies on the graph of $y = f(x)$. The image of this point on the graph of $y = f(2x)$ is

A) $(6,\ 6)$

B) $(3,\ 6)$

C) $(12,\ 3)$

D) $(3,\ 3)$

A (6, 6)

B (3, 6)

C (12, 3)

D (3, 3)

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42 As x → -∞, the value of 2x³ + x approaches

Question 42

As $x \to -\infty$, the value of $2x^3 + x$ approaches

A) 2

B) positive infinity

C) negative infinity

D) 0

- **A** 2
- **B** positive infinity
- **C** negative infinity
- **D** 0

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43 An angle of -60° is coterminal with

Question 43

An angle of -60° is coterminal with

A) 120°

B) 300°

C) 240°

D) 60°

A 120°

B 300°

C 240°

D 60°

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44 A correlation of -0.15 shows

Question 44

A correlation of -0.15 shows

A) a strong negative relationship

B) no relationship at all

C) a strong positive relationship

D) a weak negative relationship

A a strong negative relationship

B no relationship at all

C a strong positive relationship

D a weak negative relationship

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45 The function f(x) = x² is

Question 45

The function $f(x) = x^2$ is

A) even

B) neither even nor odd

C) both even and odd

D) odd

A even

B neither even nor odd

C both even and odd

D odd

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46 The zeros of x² + 9 are

Question 46

The zeros of $x^2 + 9$ are

A) $9, -9$

B) none

C) $3, -3$

D) $3i, -3i$

- **A** 9, -9
- **B** none
- **C** 3, -3
- **D** 3i, -3i

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47 The number of solutions of cos x = 0 on 0 ≤ x < 2π is

Question 47

The number of solutions of $\cos x = 0$ on $0 \leq x < 2\pi$ is

ANSWER _____

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48 The probability of at least one head in two fair coin flips is

Question 48

The probability of at least one head in two fair coin flips is

A) $\frac{1}{4}$

B) $\frac{1}{2}$

C) $\frac{3}{4}$

D) 1

A 1/4

B 1/2

C 3/4

D 1

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49 The larger solution of |2x - 1| = 5 is

Question 49

The larger solution of $|2x - 1| = 5$ is

A) 2

B) −2

C) 3

D) −3

A 2

B -2

C 3

D -3

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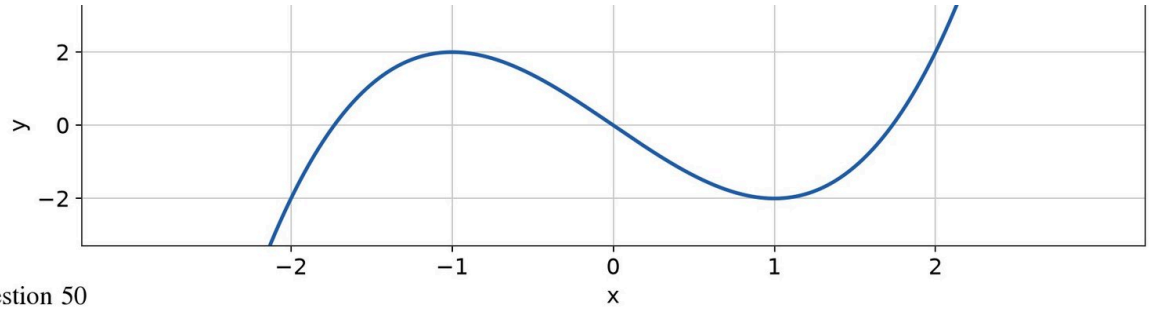
50 **The graph below shows y = x³ - 3x. The sum of its zeros is**



Question 50

The graph below shows $y = x^3 - 3x$. The sum of its zeros is

ANSWER

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ANSWER KEY

1. A
2. A
3. B
4. B
5. C
6. D
7. B
8. A
9. A
10. A
11. D
12. B
13. A
14. B
15. C
16. C
17. B
18. D
19. B
20. C
21. C
22. D
23. 2
24. A
25. D
26. D
27. 16200
28. B
29. D
30. B
31. C
32. C
33. B
34. A
35. C
36. D
37. A
38. C
39. 1102.5
40. D
41. D
42. C
43. B
44. D
45. A
46. D
47. 2
48. C
49. C
50. 0

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