FINAL EXAM - PRACTICE TEST | MISSOURI PRECALCULUS · 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) = x + 4 and g(x) = 2x, then f(g(3)) is**

Question 1

If $f(x) = x + 4$ and $g(x) = 2x$, then $f(g(3))$ is

A) 6 B) 7

C) 10 D) 14

- **A** 6
- **B** 7
- **C** 10
- **D** 14

Understand It with Pulse | Flag a mistake

2 The smallest nonnegative solution of sin x = 1/2 is

Question 2

The smallest nonnegative solution of $\sin x = \frac{1}{2}$ is

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

B) $\frac{5\pi}{6}$

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

D) $\frac{\pi}{6}$

- **A** π/3
- **B** 5π/6
- **C** π/2
- **D** π/6

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3 The transverse axis length of $x^2/16 - y^2/9 = 1$ is

Question 3

The transverse axis length of $\frac{x^2}{16} - \frac{y^2}{9} = 1$ is

A) 3

B) 4

C) 6

D) 8

A 3

B 4

C 6

D 8

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4 The limit $\lim_{x \to 2} x^2 - 4/x - 2$ is

Question 4

Find $\lim_{x \to 2} \frac{x^2 - 4}{x - 2}$

A) 2

B) 3

C) 4

D) 0

- **A** 2
- **B** 3
- **C** 4
- **D** 0

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5 If f(x) = x² and g(x) = f(x + 2), then g(-1) is

Question 5

If $f(x) = x^2$ and $g(x) = f(x + 2)$, then $g(-1)$ is

A) 9

B) 4

C) 1

D) 3

A 9

B 4

C 1

D 3

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6 The value of tan 45° is

Question 6

The value of tan 45° is

A) 0

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

C) 1

D) $\sqrt{3}$

A 0

B 1/2

C 1

D $\sqrt{3}$

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7 The focus of $(x - 1)^2 = 8(y - 2)$ is

Question 7

The focus of $(x - 1)^2 = 8(y - 2)$ is

A) (1, 4)

B) (1, 0)

C) (3, 2)

D) (−1, 2)

A (1, 4)

B (1, 0)

C (3, 2)

D (-1, 2)

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8 The limit $\lim_{x \to \infty} 3x^2/x^2 + 1$ is

Question 8

Find $\lim_{x \to \infty} \frac{3x^2}{x^2+1}$

A) 0

B) 1

C) ∞

D) 3

A 0

B 1

C ∞

D 3

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9 The inverse of f(x) = 2x + 6 is

Question 9

The inverse of $f(x) = 2x + 6$ is

A) $f^{-1}(x) = \frac{x-6}{2}$

B) $f^{-1}(x) = \frac{x+6}{2}$

C) $f^{-1}(x) = 2x - 6$

D) $f^{-1}(x) = \frac{x}{2} + 6$

A $f^{-1}(x) = x - 6/2$

B $f^{-1}(x) = x + 6/2$

C $f^{-1}(x) = 2x - 6$

D $f^{-1}(x) = x/2 + 6$

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10 If sin θ = 3/5 and θ is in Quadrant I, then cos θ is

Question 10

If $\sin\ \theta\ =\ \frac{3}{5}$ and θ is in Quadrant I, then $\cos\ \theta$ is

A) $\frac{4}{5}$

B) $-\frac{4}{5}$

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

D) $\frac{5}{4}$

A 4/5

B -4/5

C 3/4

D 5/4

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11 The radius of $(x - 3)^2 + (y + 2)^2 = 25$ is

Question 11

The radius of $(x - 3)^2 + (y + 2)^2 = 25$ is

A) 25

B) 5

C) 10

D) $\sqrt{5}$

A 25

B 5

C 10

D $\sqrt{5}$

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12 The function f(x) = x² - 1/x - 1 has a removable discontinuity at

Question 12

The function $f(x) = \frac{x^2-1}{x-1}$ has a removable discontinuity at

A) $x = 0$

B) $x = 1$

C) $x = -1$

D) no value

A x = 0

B x = 1

C x = -1

D no value

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13 The function f(x) = x² + 5 is

Question 13

The function $f(x) = x^2 + 5$ is

A) odd

B) neither even nor odd

C) even

D) both even and odd

A odd

B neither even nor odd

C even

D both even and odd

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14 The value of sec 60° is

Question 14

The value of sec 60° is

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

B) $\sqrt{3}$

C) $\frac{2}{\sqrt{3}}$

D) 2

A 1/2

B $\sqrt{3}$

C $2/\sqrt{3}$

D 2

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15 For $x^2/25 + y^2/9 = 1$, the foci are

Question 15

For $\frac{x^2}{25} + \frac{y^2}{9} = 1$, the foci are

A) $(\pm 4, 0)$

B) $(\pm 3, 0)$

C) $(\pm 5, 0)$

D) $(0, \pm 4)$

A (± 3, 0)

B (± 4, 0)

C (± 5, 0)

D (0, ± 4)

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16

In an arithmetic sequence with $a_1 = 3$ and common difference 4, the tenth term is

Question 16

In an arithmetic sequence with $a_1 = 3$ and common difference 4, the tenth term is

A) 35

B) 39

C) 43

D) 40

A 35

B 39

C 43

D 40

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17 The range of f(x) = x² + 2 is

Question 17

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

A) $y \geq 0$

B) $y > 2$

C) $y \geq 2$

D) $y \leq 2$

A y ≥ 0

B y > 2

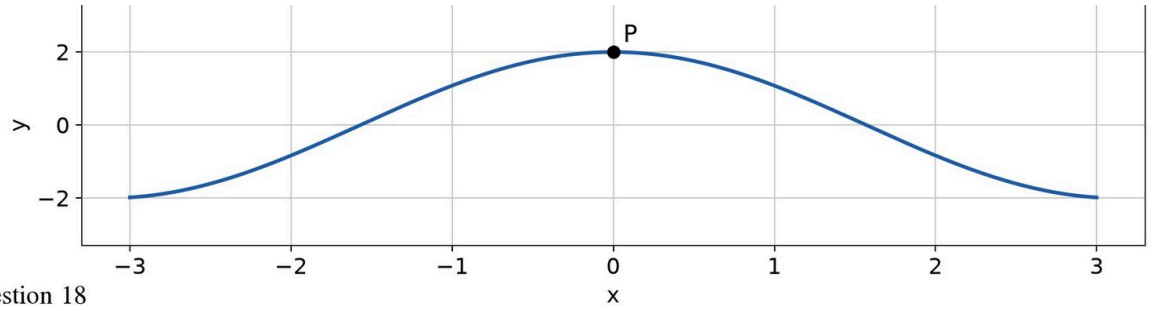
C y ≥ 2

D y ≤ 2

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18 **The graph shows y = 2 cos x. The value of y when x = 0 is**



Question 18

The graph shows $y = 2 \cos x$. The value of y when $x = 0$ is

A) 0

B) 1

C) 2

D) −2

A 0

B 1

C 2

D -2

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19 The vertices of $y^2/25 - x^2/16 = 1$ are

Question 19

The vertices of $\frac{y^2}{25} - \frac{x^2}{16} = 1$ are

A) $(\pm 4, 0)$

B) $(0, \pm 4)$

C) $(\pm 5, 0)$

D) $(0, \pm 5)$

A (± 4, 0)

B (0, ± 4)

C (± 5, 0)

D (0, ± 5)

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20 The sum of the infinite geometric series with $a_1 = 12$ and $r = 1/3$ is

Question 20

The sum of the infinite geometric series with $a_1 = 12$ and $r = \frac{1}{3}$ is

A) 16

B) 18

C) 24

D) 36

A 16

B 18

C 24

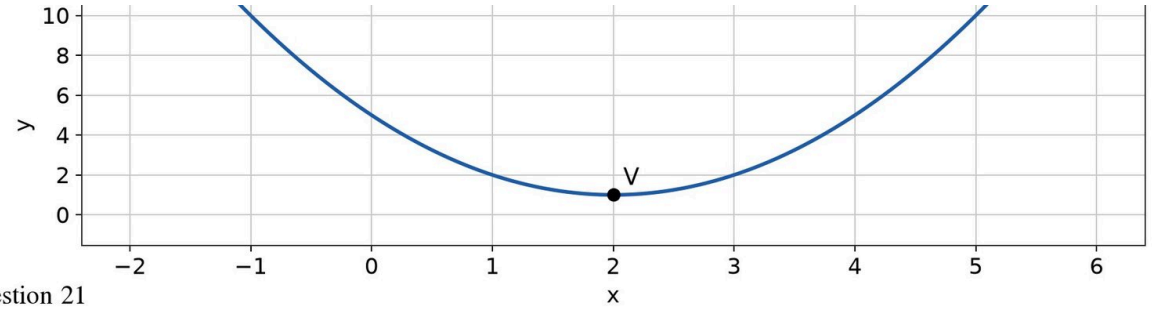
D 36

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21

The graph shows the parabola y = (x - 2)² + 1. The vertex is



Question 21

The graph shows the parabola $y = (x - 2)^2 + 1$. The vertex is

A) (2, 1)

B) (−2, 1)

C) (2, −1)

D) (1, 2)

A (2, 1)

B (-2, 1)

C (2, -1)

D (1, 2)

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22 The value of $\sin^{-1} 1/2$ is

Question 22

The value of $\sin^{-1} \frac{1}{2}$ is

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

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

C) $\frac{5\pi}{6}$

D) $-\frac{\pi}{6}$

A π/6

B π/3

C 5π/6

D -π/6

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23 The midpoint of (2, 3) and (6, 7) is

Question 23

The midpoint of (2, 3) and (6, 7) is

A) (4, 5)

B) (3, 5)

C) (4, 10)

D) (8, 10)

A (4, 5)

B (3, 5)

C (4, 10)

D (8, 10)

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24 The sum sum$_{k=1}^{4}$ 2k is

Question 24

The sum $\sum_{k=1}^{4} 2k$ is

A) 16

B) 18

C) 20

D) 24

A 16

B 18

C 20

D 24

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25 The x-intercept of f(x) = 3x - 12 is

Question 25

The x –intercept of $f(x) = 3x - 12$ is

A) –4

B) 12

C) –12

D) 4

A -4

B 12

C -12

D 4

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26 The value of sin 30° is

Question 26

The value of sin 30° is

A) $\frac{\sqrt{3}}{2}$

B) 1

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

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

- **A** $\sqrt{3}/2$
- **B** 1
- **C** $\sqrt{2}/2$
- **D** 1/2

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27 The radius of $(x - 2)^2 + y^2 = 9$ is ____.

Question 27

The radius of $(x - 2)^2 + y^2 = 9$ is ____.

ANSWER _____

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28 The sequence 4, 12, 36, 108 has common ratio

Question 28

The sequence 4, 12, 36, 108 has common ratio

A) 2

B) 3

C) 4

D) 8

A 2

B 3

C 4

D 8

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29 The inverse of f(x) = x/3 - 2 is

Question 29

The inverse of $f(x) = \frac{x}{3} - 2$ is

A) $f^{-1}(x) = 3x - 2$

B) $f^{-1}(x) = \frac{x}{3} + 2$

C) $f^{-1}(x) = 3x + 6$

D) $f^{-1}(x) = 3x - 6$

- **A** $f^{-1}(x) = 3x - 2$
- **B** $f^{-1}(x) = x/3 + 2$
- **C** $f^{-1}(x) = 3x + 6$
- **D** $f^{-1}(x) = 3x - 6$

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30 The value of sin 90° is ____.

Question 30

The value of sin 90° is ____.

ANSWER _____

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31 The vertex of $y = x^2 - 6x + 5$ is

Question 31

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

A) $(3, -4)$

B) $(-3, -4)$

C) $(3, 4)$

D) $(-3, 4)$

A (3, -4)

B (-3, -4)

C (3, 4)

D (-3, 4)

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32 **The limit $\lim_{x \to 5} (x^2 - 4)$ is**

Question 32

Find $\lim_{x \to 5}(x^2 - 4)$

A) 21

B) 25

C) 20

D) 29

A 21

B 25

C 20

D 29

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33 The domain of f(x) = $\sqrt{2x + 6}$ is

Question 33

The domain of $f(x) = \sqrt{2x+6}$ is

A) $x \geq -3$

B) $x > -3$

C) $x \leq -3$

D) $x \geq 3$

- **A** x ≥ -3
- **B** x > -3
- **C** x ≤ -3
- **D** x ≥ 3

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34 The value of cos 60° is

Question 34

The value of cos 60° is

A) $\frac{\sqrt{3}}{2}$

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

C) 1

D) 0

A $\sqrt{3}/2$

B 1/2

C 1

D 0

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35 The center of (x + 1)² + (y - 4)² = 16 is

Question 35

The center of $(x + 1)^2 + (y - 4)^2 = 16$ is

A) (1, 4)

B) (−1, 4)

C) (1, −4)

D) (−1, −4)

A (1, 4)

B (-1, 4)

C (1, -4)

D (-1, -4)

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36 The limit $\lim_{x \to \infty} 2x + 1/x + 3$ is

Question 36

Find $\lim_{x \to \infty} \frac{2x+1}{x+3}$

A) 0

B) 1

C) 2

D) 3

A 0

B 1

C 2

D 3

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

Question 37

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

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

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

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

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

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

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

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

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

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38 The reference angle for 315° is

Question 38

The reference angle for 315° is

A) 45°

B) 135°

C) 15°

D) 75°

A 45°

B 135°

C 15°

D 75°

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Flag a mistake

39 For $x^2/16 + y^2/25 = 1$, the foci are

Question 39

For $\frac{x^2}{16} + \frac{y^2}{25} = 1$, the foci are

A) $(\pm 3, 0)$

B) $(0, \pm 3)$

C) $(0, \pm 4)$

D) $(\pm 4, 0)$

A (± 3, 0)

B (0, ± 3)

C (0, ± 4)

D (± 4, 0)

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40

The sum of the first 5 terms of an arithmetic sequence with $a_1 = 1$ and common difference 2 is

Question 40

The sum of the first 5 terms of an arithmetic sequence with $a_1 = 1$ and common difference 2 is

A) 20

B) 25

C) 30

D) 15

A 20

B 25

C 30

D 15

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41

The graph of y = f(-x) is the graph of y = f(x) reflected across the

Question 41

The graph of $y = f(-x)$ is the graph of $y = f(x)$ reflected across the

A) x −axis

B) line $y = x$

C) y −axis

D) origin

A x-axis

B line y = x

C y-axis

D origin

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

Question 42

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

A) 1

B) 3

C) 4

D) 2

A 1

B 3

C 4

D 2

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43 The equation $x^2/9 - y^2/4 = 1$ represents a

Question 43

The equation $\frac{x^2}{9} - \frac{y^2}{4} = 1$ represents a

A) circle

B) parabola

C) ellipse

D) hyperbola

A circle

B parabola

C ellipse

D hyperbola

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Flag a mistake

44 The sequence 2, 6, 18, 54 has common ratio

Question 44

The sequence 2, 6, 18, 54 has common ratio

A) 2

B) 3

C) 4

D) 6

A 2

B 3

C 4

D 6

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45 The function f(x) = x⁴ + 2x² is

Question 45

The function $f(x) = x^4 + 2x^2$ is

A) odd

B) neither even nor odd

C) linear

D) even

A odd

B neither even nor odd

C linear

D even

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46 If cos θ = 4/5 and sin θ = 3/5, then cos 2θ is

Question 46

If $\cos\ \theta\ =\ \frac{4}{5}$ and $\sin\ \theta\ =\ \frac{3}{5}$, then $\cos\ 2\theta$ is

A) $\frac{7}{25}$

B) $\frac{24}{25}$

C) $\frac{16}{25}$

D) $\frac{9}{25}$

- **A** 7/25
- **B** 24/25
- **C** 16/25
- **D** 9/25

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47 The value of p for x² = 12y is ____.

Question 47

The value of p for $x^2\ =\ 12y$ is ____.

ANSWER _____

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48 For $a_n = n^2 + 2n$, the fourth term is _____.

Question 48

For $a_n = n^2 + 2n$, the fourth term is ____.

ANSWER _____

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49 If f(x) = x² - 4x, then f(6) - f(2) is

Question 49

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

A) 8

B) 12

C) 20

D) 16

A 8

B 12

C 20

D 16

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50 The value of sin 270° is

Question 50

The value of sin 270° is

A) 1

B) 0

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

D) -1

A 1

B 0

C 1/2

D -1

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ANSWER KEY

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

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