YUKON PRE-CALCULUS 12 (MPREC12) · 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** **If (2, 5) lies on y = f(x), then on y = -f(x) the point is**

- A (2, -5)
- B (-2, 5)
- C (2, 5)
- D (-2, -5)

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**2** **The solution of $2^x = 32$ is**

- A x = 6
- B x = 5
- C x = 4
- D x = 16

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3 **The period of $y = \sin(2x)$ is**

- A $4\pi$
- B $2\pi$
- C $\pi/2$
- D $\pi$

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4 **For $a_n = 3 \cdot 2^{n-1}$, the 5th term is**

ANSWER _____

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**5** If (5, 2) lies on y = f(x), then on y = 2f(x - 3) + 1 it is

- A (5, 5)
- B (2, 5)
- C (8, 3)
- D (8, 5)

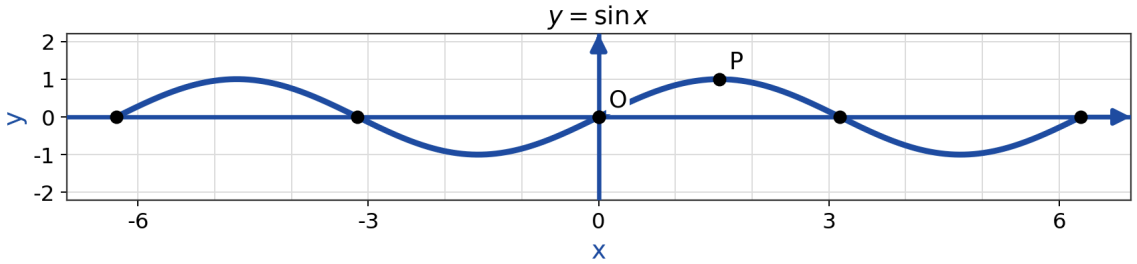
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**6** A population of 200 triples every hour. After 2 hours, the population is

ANSWER _____

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**7** **The graph shows y = sin x, with peak P. The amplitude of this graph is**




- **A** 1
- **B** 2
- **C** π
- **D** 2π

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**8** **The infinite sum 16 + 8 + 4 + 2 + cdots is**

- **A** 64
- **B** 30
- **C** 16
- **D** 32

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**9** The vertex of the parabola $y = (x - 4)^2 + 3$ is

- A (4, 3)
- B (-4, 3)
- C (4, -3)
- D (-4, -3)

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**10** Doubling a quantity three times multiplies it by

- A 3
- B 6
- C 8
- D 9

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**11** The exact value of sin π/6 is

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

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**12** The vertical asymptote of y = 1/x - 3 is

- A y = 0
- B x = -3
- C y = 3
- D x = 3

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**13** **When factored completely, $x^3 - 8$ is**

- **A** $(x - 2)(x^2 - 2x + 4)$
- **B** $(x - 2)(x^2 + 2x + 4)$
- **C** $(x + 2)(x^2 + 2x + 4)$
- **D** $(x - 2)^3$

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**14** **Shifting $y = 2^x$ right 2 and up 1 gives**

- **A** $y = 2^{x+2} + 1$
- **B** $y = 2^{x-2} + 1$
- **C** $y = 2^{x-2} - 1$
- **D** $y = 2^{x+2} - 1$

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**15** **The exact value of sin π/2 is**

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

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**16** **The domain of y = x/x² - 9 excludes**

- **A** x = 0
- **B** x = 3 and x = -3
- **C** x = 9
- **D** x = 3

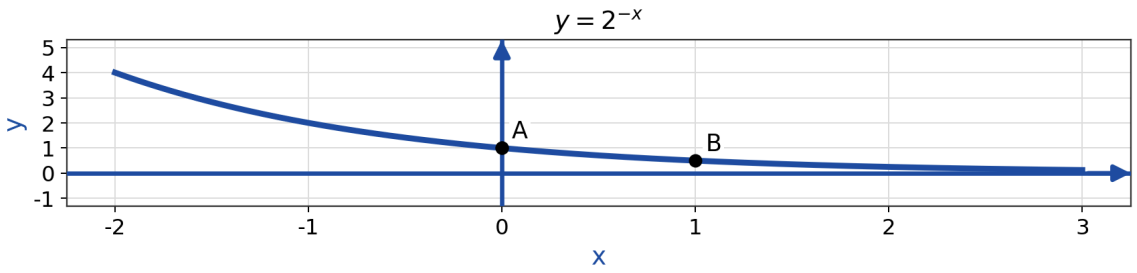
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**17** For $P(x) = x^3 - 2x^2 + 3x - 5$, the value of $P(2)$ is

ANSWER _____

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**18** The graph shows $y = 2^{-x}$, with points A and B. The value of this function at x = 1 is




A $\frac{1}{2}$

B 2

C 1

D -2

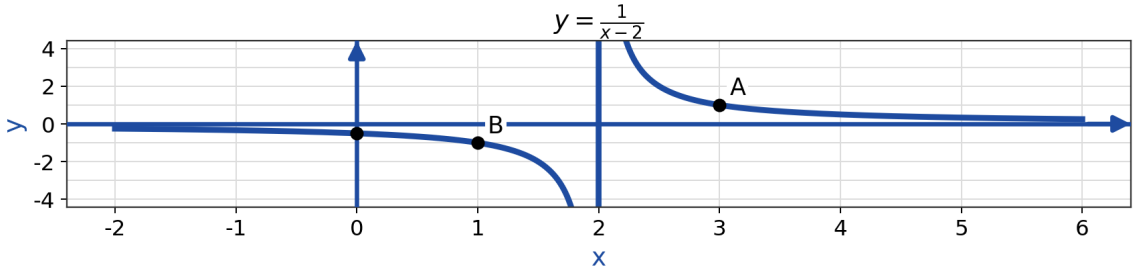
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**19** **The double angle identity for sin 2θ is**

- **A** $\sin^2 \theta + \cos^2 \theta$
- **B** $2 \sin \theta \cos \theta$
- **C** $2 \cos^2 \theta - 1$
- **D** $\sin \theta + \cos \theta$

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**20** **The graph shows y = 1/x - 2, with points A and B. The vertical asymptote of this graph is**




- **A** x = 2
- **B** x = -2
- **C** y = 0
- **D** y = 2

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**21** For $f(x) = (x - 2)^2(x + 1)$, at $x = 2$ the graph

- A touches and turns back
- B crosses straight through
- C has a vertical asymptote
- D has a hole

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**22** The solution of $\log x = 2$ (base 10) is

- A $x = 2$
- B $x = 20$
- C $x = 10$
- D $x = 100$

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**23** The solutions of 2 sin x - 1 = 0 are for x from 0 to 2π, not including 2π

- A 5π/6, 7π/6
- B π/3, 2π/3
- C π/6, 7π/6
- D π/6, 5π/6

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**24** The 3rd term of 5, 10, 20, … is

- A 15
- B 20
- C 40
- D 25

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25 **The point (3, -1) under**
**(x, y) → (x - 4, y + 2) becomes**

A (7, 1)

B (-1, 1)

C (-1, -3)

D (7, -3)

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26 **The solution of $3^{2x} = 81$ is**

A x = 2

B x = 4

C x = 3

D x = 8

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27 **For y = 4 cos(3x), the amplitude is**

A 12

B 3

C 4

D 2π

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28 **The vertical asymptote of y = 3/x + 5 is**

A y = -5

B x = 5

C x = -5

D y = 0

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**29** **Reflecting $y = x^2$ in the x-axis gives**

- A $y = -x + 2$
- B $y = (-x)^2$
- C $y = x^2 - 1$
- D $y = -x^2$

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**30** **The solution of $\log_5(2x) = 2$ is**

- A $x = 10$
- B $x = 25$
- C $x = 12.5$
- D $x = 5$

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**31** The amplitude of $y = 5 \cos x$ is

- A 5
- B 1
- C $2\pi$
- D 10

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**32** The next term of 2, 6, 18, 54, … is

- A 72
- B 108
- C 162
- D 216

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**33** If (-3, 7) lies on y = f(x), then on y = f(-x) the point is

- A (-3, -7)
- B (3, 7)
- C (3, -7)
- D (-3, 7)

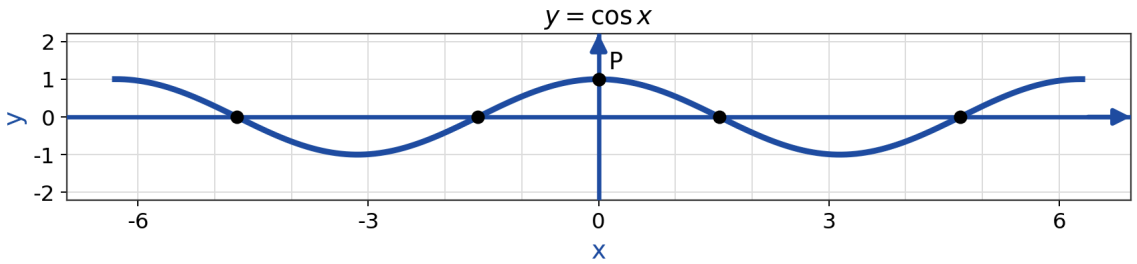
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**34** The solution of $\log_3 x = 3$ is

- A x = 3
- B x = 9
- C x = 27
- D x = 81

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**35** **The graph shows y = cos x, with point P at x = 0. The value at P is**




A 1

B 0

C -1

D 2

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**36** **The sum 5 + 10 + 20 + 40 is**

A 70

B 75

C 65

D 80

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37 **The sum of the zeros of (x + 5)(x - 2)(x - 4) is**

ANSWER

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38 **The solution of $10^x = 10000$ is**

A x = 1000

B x = 10

C x = 3

D x = 4

Understand It with Pulse | Flag a mistake

**39** The exact value of tan π/3 is

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

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**40** The horizontal asymptote of y = 5x - 1/2x + 3 is

- A y = 0
- B y = 5
- C y = 2
- D $y = \frac{5}{2}$

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41 **For $P(x) = 2x^2 - 5x + 3$, the remainder on division by $x - 1$ is**

ANSWER _____

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42 **The solution of $2^{x+1} = 16$ is**

A $x = 4$

B $x = 3$

C $x = 2$

D $x = 8$

Understand It with Pulse | Flag a mistake

**43** The solutions of cos x = 0 are for x from 0 to 2π, not including 2π

- A π/4, 5π/4
- B 0, π
- C π/2, 3π/2
- D π/3, 5π/3

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**44** The domain of y = 1/x - 8 excludes

- A x = 0
- B x = 8
- C x = -8
- D x = 1

Understand It with Pulse | Flag a mistake

**45** **For $f(x) = (x + 3)(x - 1)^3$, at $x = -3$ the graph**

A has a vertical asymptote

B touches and turns back

C crosses straight through

D has a hole

Understand It with Pulse | Flag a mistake

**46** **Written as a logarithm, $2^6 = 64$ becomes**

A $\log_{64} 2 = 6$

B $\log_6 64 = 2$

C $\log_2 6 = 64$

D $\log_2 64 = 6$

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**47** **The value of sin π is**

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

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**48** **An infinite geometric series with ratio $\frac{3}{4}$ and first term 8**

- A sums to 0
- B diverges
- C converges
- D is arithmetic

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**49** If (0, -4) lies on y = f(x), then on y = f(x + 5) - 3 the point is

- A (-5, -7)
- B (5, -7)
- C (-5, -1)
- D (5, -1)

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**50** Using log laws, log 2 + log 5 equals

- A log 10
- B log 7
- C log 25
- D 2 log 5

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# ANSWER KEY

| | | | | | |
|---|---|---|---|---|---|
| **1.** | A | **18.** | A | **35.** | A |
| **2.** | B | **19.** | B | **36.** | B |
| **3.** | D | **20.** | A | **37.** | 1 |
| **4.** | 48 | **21.** | A | **38.** | D |
| **5.** | D | **22.** | D | **39.** | C |
| **6.** | 1800 | **23.** | D | **40.** | D |
| **7.** | A | **24.** | B | **41.** | 0 |
| **8.** | D | **25.** | B | **42.** | B |
| **9.** | A | **26.** | A | **43.** | C |
| **10.** | C | **27.** | C | **44.** | B |
| **11.** | D | **28.** | C | **45.** | C |
| **12.** | D | **29.** | D | **46.** | D |
| **13.** | B | **30.** | C | **47.** | D |
| **14.** | B | **31.** | A | **48.** | C |
| **15.** | B | **32.** | C | **49.** | A |
| **16.** | B | **33.** | B | **50.** | A |
| **17.** | 1 | **34.** | C | | |

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