ONTARIO ADVANCED FUNCTIONS, GRADE 12, UNIVERSITY PREPARATION (MHF4U) · 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 degree of y = (x - 1)(x + 2)(x - 3) is**

- A 3
- B 2
- C 4
- D 1

Understand It with Pulse | Flag a mistake

2 **Using logarithm laws, log 3 + log 2 equals**

- A log 5
- B log 6
- C log 1
- D 3 log 2

Understand It with Pulse | Flag a mistake

3 **The amplitude of y = 2 cos x is**

A 3

B 1

C 2

D 13

Understand It with Pulse | Flag a mistake

4 **For f(x) = x + 2 and g(x) = x - 3 the value of (f ° g)(4) is**

A 4

B 2

C 5

D 3

Understand It with Pulse | Flag a mistake

5 The horizontal asymptote of y = 3x/x - 2 is y equal to

- A 3
- B 0
- C 2
- D 1

Understand It with Pulse | Flag a mistake

6 The value of $\log_2 4$ is

- A 2
- B 3
- C 1
- D 4

Understand It with Pulse | Flag a mistake

7 **The reference angle for 120° in degrees, is**

A 60

B 90

C 71

D 49

Understand It with Pulse | Flag a mistake

8 **If f(x) = 2x + 1 then $f^{-1}(5)$ equals**

A 1

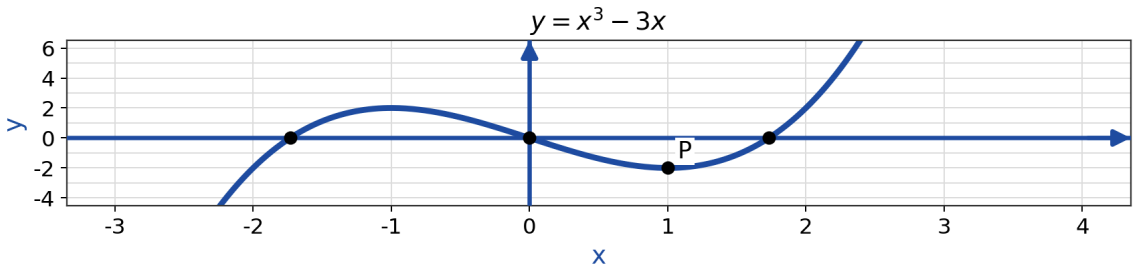
B 3

C 2

D 0

Understand It with Pulse | Flag a mistake

9 **The graph shows a polynomial function. The marked point is a local minimum or maximum? The value at the marked point is Figure 1**



A 0

B -4

C -2

D 9

Understand It with Pulse | Flag a mistake

10 **If log base 2 of x = 5 , then x is**

ANSWER _____

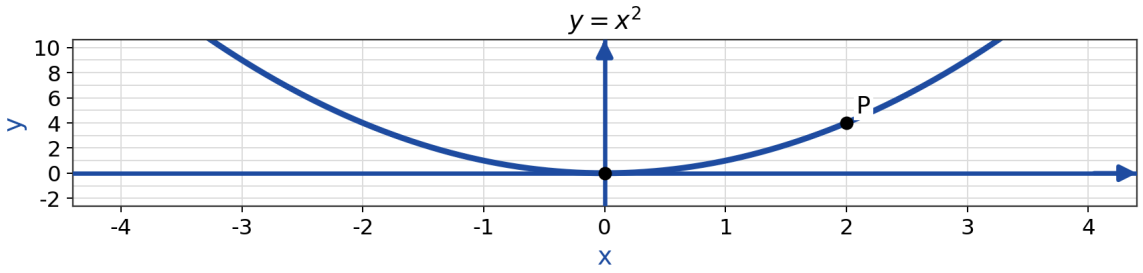
Understand It with Pulse | Flag a mistake

11 **The period, in degrees, of y = sin 6x is**

- **A** 90
- **B** 360
- **C** 180
- **D** 60

Understand It with Pulse | Flag a mistake

12 **The graph shows a function. The value at the marked point is Figure 1**



- **A** 4
- **B** 5
- **C** 3
- **D** 8

Understand It with Pulse | Flag a mistake

13 **The zeros of y = (x - 2)(x + 1) are**

A x = 2, x = 1

B x = -2, x = -1

C x = 2, x = -1

D x = 1, x = -1

Understand It with Pulse | Flag a mistake

14 **Using the change of base, log base 2 of 10 is about**

ANSWER _____

Understand It with Pulse | Flag a mistake

15 The value of $\sin^2 30° + \cos^2 30°$ is

- A 0
- B 2
- C -1
- D 1

Understand It with Pulse | Flag a mistake

16 For $f(x) = x + 3$ and $g(x) = 4x$ the value of $(f + g)(2)$ is

- A 13
- B 14
- C 12
- D 17

Understand It with Pulse | Flag a mistake

17 **If x + 2 is a factor of a polynomial P, then P(-2) equals The root is negative.**

- A 1
- B -2
- C 0
- D 2

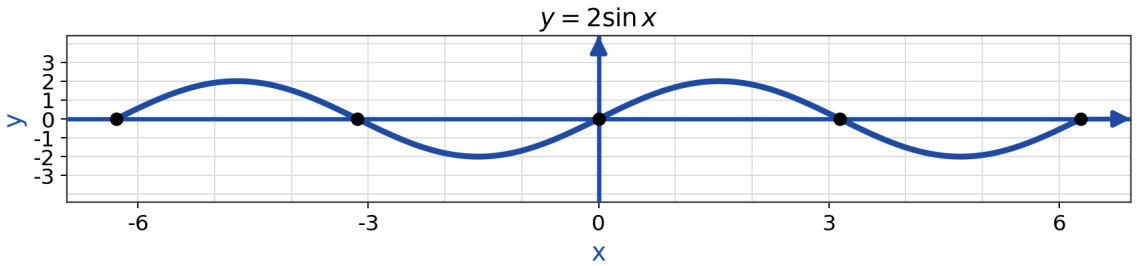
Understand It with Pulse | Flag a mistake

18 **The solution of $2^x = 16$ is x equal to**

- A 4
- B 5
- C 3
- D 6

Understand It with Pulse | Flag a mistake

19 **The graph shows a trigonometric function. Its amplitude is Figure 2**



- **A** 3
- **B** 2
- **C** 4
- **D** 1

Understand It with Pulse | Flag a mistake

20 **The difference quotient for f(x) = 4x with step h is equal to**

- **A** 4
- **B** 0
- **C** 2
- **D** 5

Understand It with Pulse | Flag a mistake

21 The horizontal asymptote of $y = 3x/x - 3$ is y equal to

- A 0
- B 3
- C 14
- D 1

Understand It with Pulse | Flag a mistake

22 The solution of $\log_2 x = 2$ is x equal to

- A 15
- B -7
- C 4
- D 6

Understand It with Pulse | Flag a mistake

23 **A model h(t) = 5 sin t + 20 has maximum value**

- A 20
- B 25
- C 5
- D 26

Understand It with Pulse | Flag a mistake

24 **For f(x) = x + 4 and g(x) = x - 5 the value of (f ° g)(6) is**

- A 6
- B 5
- C 4
- D 7

Understand It with Pulse | Flag a mistake

25 For the polynomial $P(x) = x^3 - 4x$ the value of $P(2)$ is

- A 8
- B 0
- C 2
- D 11

Understand It with Pulse | Flag a mistake

26 The domain of $y = \log(x - 2)$ is

- A $x > 2$
- B $x \geq 2$
- C $x < 2$
- D $x > -2$

Understand It with Pulse | Flag a mistake

27 The exact value of sin 60° is

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

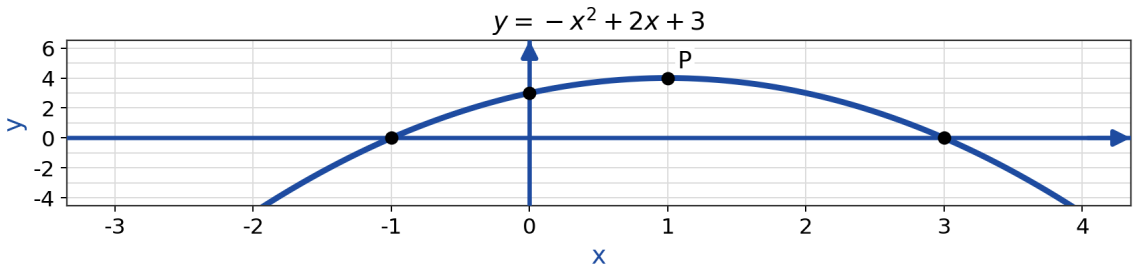
Understand It with Pulse | Flag a mistake

28 For f(x) = x² the instantaneous rate of change at x equal to 4 is

- A 10
- B 6
- C 8
- D 4

Understand It with Pulse | Flag a mistake

29 **The graph shows a polynomial function. The marked point is a local minimum or maximum? The value at the marked point is Figure 3**



- **A** 6
- **B** 2
- **C** 4
- **D** 0

Understand It with Pulse | Flag a mistake

30 **The domain of y = log(x - 2) is x greater than**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **A model h(t) = 3 sin t + 15 has maximum value**

A 15

B 3

C 19

D 18

Understand It with Pulse | Flag a mistake

32 **For f(x) = x + 1 and g(x) = x - 4 the value of (f ° g)(3) is**

A 1

B -1

C 0

D 2

Understand It with Pulse | Flag a mistake

33 For the polynomial $P(x) = x^3 - 5x$ the value of $P(2)$ is

- A 8
- B 0
- C -2
- D 9

Understand It with Pulse | Flag a mistake

34 The y intercept of $y = \log_2(x + 4)$ is

- A 2
- B 3
- C 1
- D 0

Understand It with Pulse | Flag a mistake

35 The period, in radians, of y = sin 5x is

- A 2π
- B 2π/5
- C π
- D π/3

Understand It with Pulse | Flag a mistake

36 For f(x) = x + 7 and g(x) = 2x the value of (f ° g)(3) is

- A 14
- B 13
- C 12
- D 6

Understand It with Pulse | Flag a mistake

37 The horizontal asymptote of y = 3x/x - 5 is y equal to

- A 0
- B 5
- C 1
- D 3

Understand It with Pulse | Flag a mistake

38 An amount grows as $A(t) = 100(2)^t$ The value when t = 2 is

- A 400
- B 200
- C 411
- D 500

Understand It with Pulse | Flag a mistake

39 **Using the double angle identity, sin 2(30°) equals sin 60° whose exact value is**

A $\frac{1}{2}$

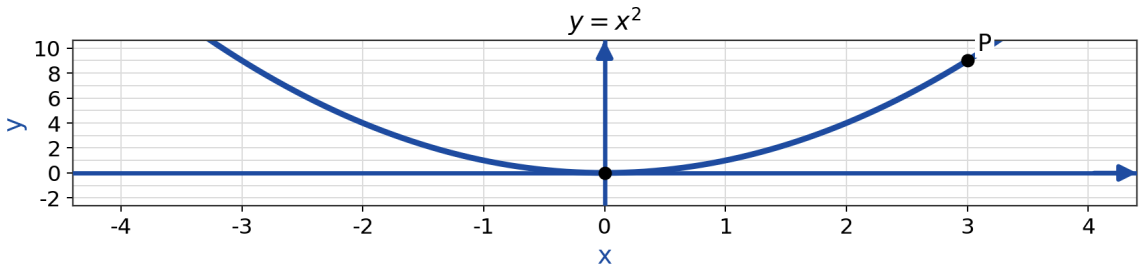
B $\sqrt{3}/2$

C $\sqrt{2}/2$

D 1

Understand It with Pulse | Flag a mistake

40 **The graph shows a function. The value at the marked point is Figure 2**



A 9

B 10

C 8

D 18

Understand It with Pulse | Flag a mistake

41 **As x approaches positive infinity, the graph of $y = -x^5$ approaches**

A positive infinity

B negative infinity

C zero

D one

Understand It with Pulse | Flag a mistake

42 **An amount grows as $A(t) = 100(2)^t$ The value when t = 5 is**

A 500

B 1600

C 3300

D 3200

Understand It with Pulse | Flag a mistake

43 **The value of $\sin^2 90° + \cos^2 90°$ is**

A 0

B 2

C -1

D 1

Understand It with Pulse | Flag a mistake

44 **The difference quotient for f(x) = 6x with step h is equal to**

A 0

B 2

C 7

D 6

Understand It with Pulse | Flag a mistake

45 **When P(x) = x² + 3x + 1 is divided by x - 1 the remainder is**

A 4

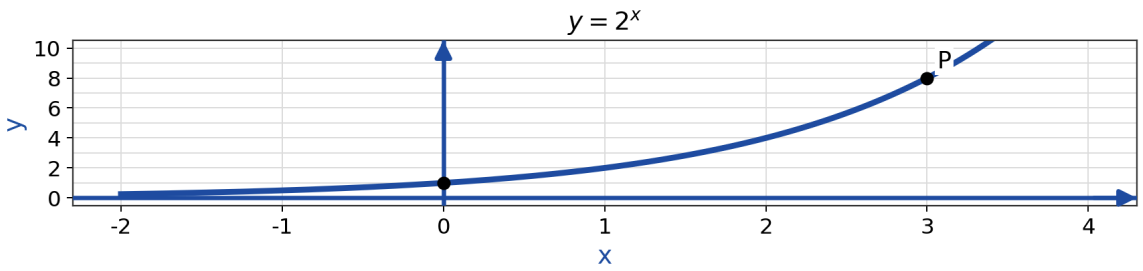
B 6

C 1

D 5

Understand It with Pulse | Flag a mistake

46 **The graph shows an exponential or logarithmic function. The value at the marked point is Figure 3**



A 16

B 8

C 9

D 7

Understand It with Pulse | Flag a mistake

47 **The value of sin² 120° + cos² 120° is**

A 0

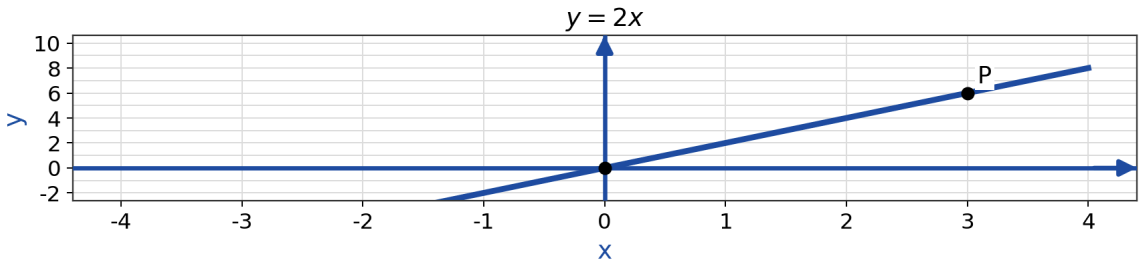
B 2

C -1

D 1

Understand It with Pulse | Flag a mistake

48 **The graph shows a function. The value at the marked point is Figure 3**



A 6

B 7

C 5

D 12

Understand It with Pulse | Flag a mistake

49 **The zeros of y = (x - 6)(x + 1) are**

A x = 6, x = 1

B x = -6, x = -1

C x = 6, x = -1

D x = 1, x = -1

Understand It with Pulse | Flag a mistake

50 **The half life model $A(t) = 100(0.5)^{t/30}$ gives, after 60 units of time, an amount of**

A 50

B 25

C 75

D 12

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	A	**18.**	A	**35.**	B
2.	B	**19.**	B	**36.**	B
3.	C	**20.**	A	**37.**	D
4.	D	**21.**	B	**38.**	A
5.	A	**22.**	C	**39.**	B
6.	A	**23.**	B	**40.**	A
7.	A	**24.**	B	**41.**	B
8.	C	**25.**	B	**42.**	D
9.	C	**26.**	A	**43.**	D
10.	32	**27.**	B	**44.**	D
11.	D	**28.**	C	**45.**	D
12.	A	**29.**	C	**46.**	B
13.	C	**30.**	2	**47.**	D
14.	3.32	**31.**	D	**48.**	A
15.	D	**32.**	C	**49.**	C
16.	A	**33.**	C	**50.**	B
17.	C	**34.**	A		

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