BRITISH COLUMBIA FOUNDATIONS OF MATHEMATICS 12 (MFOM-12) · UNIT B · 25 QUESTIONS

Advanced Functions and Regression — 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 $f(x) = 2x^3 - x + 1$, then the value of $f(2)$ is ____.**



ANSWER

Understand It with Pulse | Flag a mistake

2 For $f(x) = -3x^4 + 2x^2 - 5$, the degree and leading coefficient are

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

Understand It with Pulse | Flag a mistake

3 If $f(x) = 3 \cdot 2^x$, then the value of $f(3)$ is ____.

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **A bacteria culture starts at 200 cells and doubles every hour. After 3 hours, the number of cells is ____.**



ANSWER _____

Understand It with Pulse | Flag a mistake

5 **The value of $\log_2 32$ is ____.**

ANSWER _____

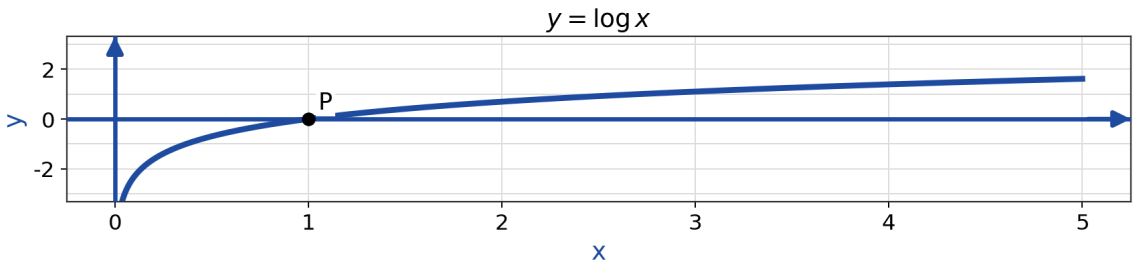
Understand It with Pulse | Flag a mistake

6 **If $\log_3 x = 4$, then the value of x is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **The graph shows y = log x. The value of y at the point P is**



A 1

B -1

C 2

D 0

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8 **The amplitude of y = 3 sin x is**



A 1

B 2

C 3

D 6

Understand It with Pulse | Flag a mistake

9 The period of $y = 2 \sin 3x$ is

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

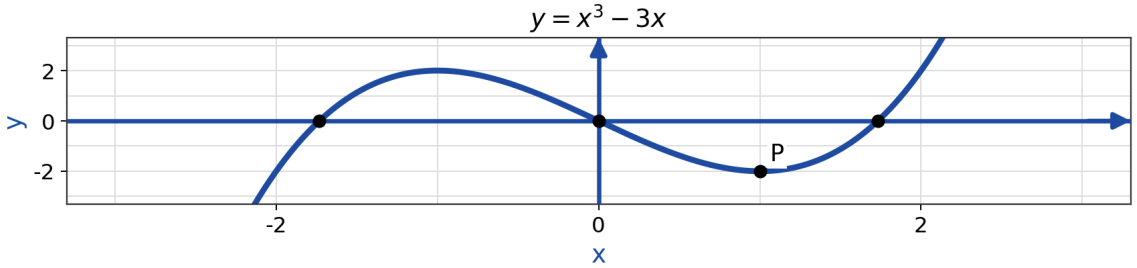
Understand It with Pulse | Flag a mistake

10 The midline of $y = 2 \cos x + 1$ is

- A $y = 1$
- B $y = 0$
- C $y = 2$
- D $y = 3$

Understand It with Pulse | Flag a mistake

11 The graph shows the cubic $y = x^3 - 3x$. The value of y at the point P is



A -3

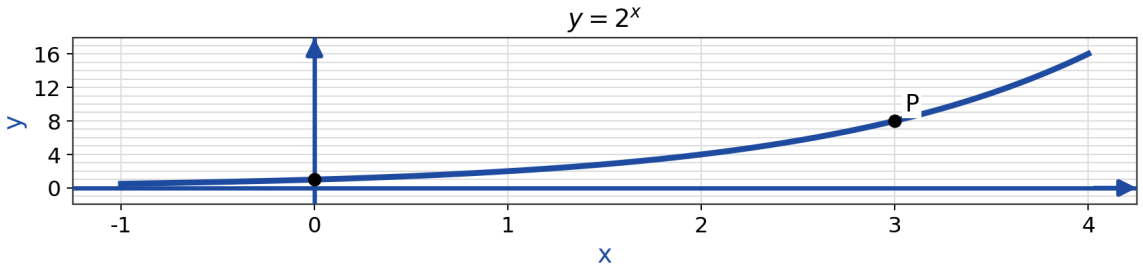
B -2

C 2

D 3

Understand It with Pulse | Flag a mistake

12 **The graph shows $y = 2^x$. The value of y at the point P is**



A 4

B 6

C 8

D 16

Understand It with Pulse | Flag a mistake

13 **A line of best fit is y = 2.5x + 4. The predicted value of y when x = 10 is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

14 **For a line of best fit with slope 2.5, an increase of 1 in x is linked to**



A no change in y

B an increase of 2.5 in y

C a decrease of 2.5 in y

D an increase of 1 in y

Understand It with Pulse | Flag a mistake

15 **A correlation coefficient of 0.92 shows a**

A strong positive correlation

B weak positive correlation

C strong negative correlation

D no correlation

Understand It with Pulse | Flag a mistake

16 **A correlation coefficient of -0.15 shows a**

A strong negative correlation

B weak positive correlation

C strong positive correlation

D weak negative correlation

Understand It with Pulse | Flag a mistake

17 **A quadratic model is $y = x^2 - 2x + 1$. The predicted value when $x = 4$ is _____.**



ANSWER _____

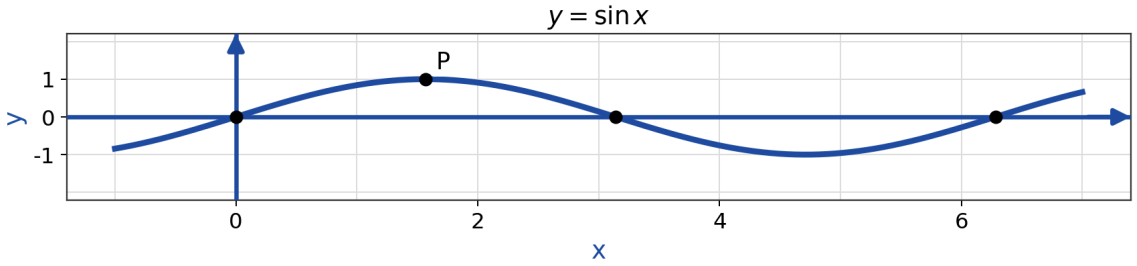
Understand It with Pulse | Flag a mistake

18 **An exponential model is $y = 5 \cdot 1.2^x$. The predicted value when $x = 3$ is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **The graph shows y = sin x. The maximum value of y on the graph is**



A -1

B 0

C 1

D 2

Understand It with Pulse | Flag a mistake

20 **As x grows without bound, y = -x³ will**

A rise without bound

B fall without bound

C approach 0

D approach 3

Understand It with Pulse | Flag a mistake

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

- **A** $x > 2$
- **B** $x > 0$
- **C** $x \geq 2$
- **D** all x

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22 A sample of 800 grams decays with a half-life of one hour. After 2 hours, the mass remaining, in grams, is ____.

ANSWER _____

Understand It with Pulse | Flag a mistake

23 An observed value is 30 and the predicted value is 26. The residual, observed minus predicted, is ____.

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **The period of y = cos 2x is**

- **A** $\frac{\pi}{2}$
- **B** π
- **C** 2π
- **D** 4π

Understand It with Pulse | Flag a mistake

25 **Data that form a single U shape are best fit by a**



A linear model

B quadratic model

C exponential model

D sinusoidal model

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. 15
2. B
3. 24
4. 1600
5. 5
6. 81
7. D
8. C
9. B
10. A
11. B
12. C
13. 29
14. B
15. A
16. D
17. 9
18. 8.64
19. C
20. B
21. A
22. 200
23. 4
24. B
25. B

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