NORTHWEST TERRITORIES 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

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

ANSWER _____

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

ANSWER _____

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

ANSWER _____

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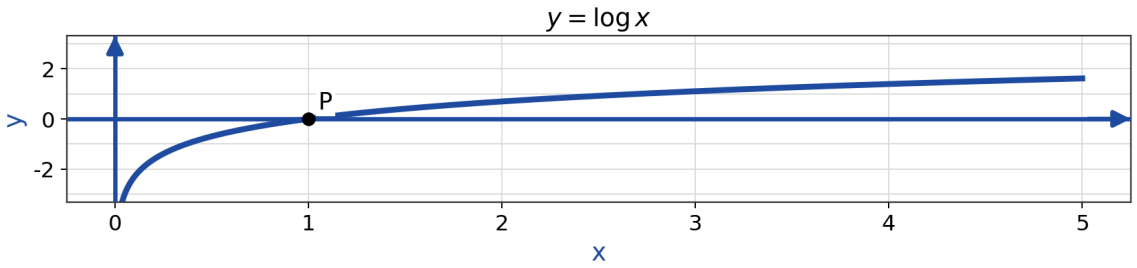
6 **If $\log_3 x = 4$, then the value of $x$ is ____.**

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

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

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

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

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

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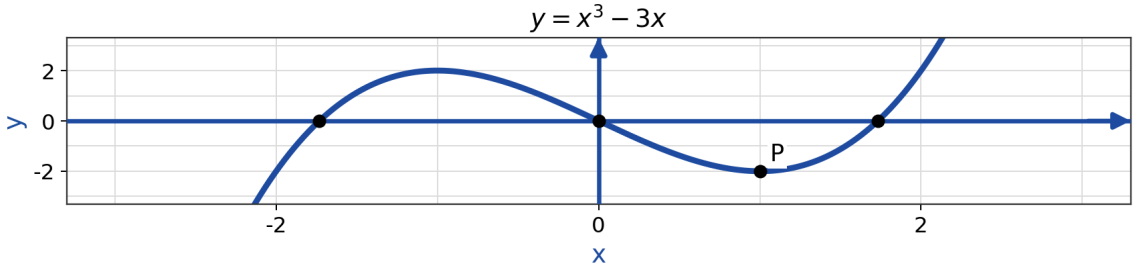
**11** **The graph shows the cubic $y = x^3 - 3x$. The value of y at the point P is**




A -3

B -2

C 2

D 3

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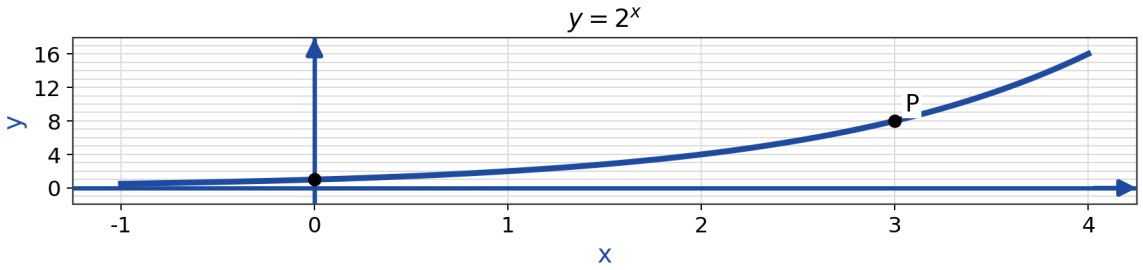
**12** **The graph shows $y = 2^x$. The value of y at the point P is**




A 4

B 6

C 8

D 16

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

ANSWER _____

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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

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

A strong positive correlation

B weak positive correlation

C strong negative correlation

D no correlation

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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

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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** For y = sin x, the maximum value of y is

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

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**20** As x grows without bound, $y = -x^3$ 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 ≥ 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 _____

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**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 $\underline{\pi}$
- B $\pi$
- C $2\pi$
- D $4\pi$

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

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# ANSWER KEY

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

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