NORTHWEST TERRITORIES PRE-CALCULUS 12 (MPREC12) · UNIT D · 25 QUESTIONS

# Sequences, Series and Rational Functions — 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 next term of 3, 6, 12, 24, … is**

- A 48
- B 36
- C 30
- D 42

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

ANSWER _____

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3 **The common ratio of 81, 27, 9, 3, … is**

A -3

B 3

C 1

D 9

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

ANSWER _____

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5 **The sum 1 + 2 + 4 + 8 + 16 + 32 + 64 is**

- A 128
- B 126
- C 127
- D 64

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

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

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7 **The infinite sum 9 + 3 + 1 + cdots is**

ANSWER _____

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8 **The infinite geometric series with ratio 2**

A sums to 0

B sums to 1

C sums to 2

D diverges

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**9** The vertical asymptote of $y = \frac{1}{x - 3}$ is

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

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**10** The horizontal asymptote of $y = \frac{2x + 1}{x - 4}$ is

- **A** y = -4
- **B** y = 1
- **C** y = 2
- **D** y = 0

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**11** The horizontal asymptote of $y = \frac{1}{x + 2}$ is

- **A** $y = 0$
- **B** $y = 1$
- **C** $y = -2$
- **D** $x = -2$

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**12** The domain of $y = \frac{x}{x^2 - 9}$ excludes

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

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13 **Simplified, $\frac{x^2 - 9}{x - 3}$ equals (for x ne 3)**

A x + 3

B x - 3

C x + 9

D x - 9

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14 **The solution of $\frac{1}{x} = 4$ is**

A x = 2

B x = 4

C x = -4

D x = $\underline{1}$

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**15** The solution of $\frac{x}{x - 1} = 2$ is

- **A** x = 1
- **B** x = 2
- **C** x = -2
- **D** x = 0

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**16** For y = 1/(x - 2), the vertical asymptote is

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

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17 **For y = 2x/(x + 1), the horizontal asymptote is**

A y = 1

B y = 2

C y = 0

D y = -1

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18 **The points (1, 2), (2, 4), (3, 8) lie on a geometric pattern. The next point in the pattern is**

A (4, 14)

B (4, 12)

C (4, 10)

D (4, 16)

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

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

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**20** The sum of the first 4 terms of 3, 6, 12, … is

- A 45
- B 36
- C 24
- D 48

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**21** An infinite geometric series with $a = 20$ and $r = \frac{1}{2}$ sums to

ANSWER

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**22** The vertical asymptote of $y = \frac{3}{x + 5}$ is

A. $y = -5$

B. $x = 5$

C. $x = -5$

D. $y = 0$

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**23** The x-intercept of $y = \frac{x - 4}{x + 2}$ is

- **A** x = -2
- **B** x = 4
- **C** x = 2
- **D** x = -4

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**24** The solution of $\frac{2}{x} = 5$ is

- **A** x = $\underline{2}$
- **B** x = 5
- **C** x = $\underline{5}$
- **D** x = 10

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25 **A ball bounces to half its height each time. Starting at 8 metres, the infinite total distance up and down is**

A 32 metres

B 16 metres

C 24 metres

D 12 metres

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# ANSWER KEY

| | | | | | |
|---|---|---|---|---|---|
| **1.** | A | **10.** | C | **19.** | B |
| **2.** | 48 | **11.** | A | **20.** | A |
| **3.** | C | **12.** | B | **21.** | 40 |
| **4.** | 30 | **13.** | A | **22.** | C |
| **5.** | C | **14.** | D | **23.** | B |
| **6.** | D | **15.** | B | **24.** | A |
| **7.** | 13.5 | **16.** | A | **25.** | C |
| **8.** | D | **17.** | B | | |
| **9.** | D | **18.** | D | | |

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