



# Grade 12 Advanced Functions Unit Test

Name \_\_\_\_\_ Date \_\_\_\_\_ Score \_\_\_\_\_ / 16

## Part A · Advanced Functions

01

Using the Remainder Theorem, find the remainder when  $f(x) = x^3$  is divided by  $(x + 1) =$

\_\_\_\_\_

02

Describe the end behaviour of  $f(x) = 9x^3 - 8x^2 - 3x + 1 =$  \_\_\_\_\_

03

Is  $(x)$  a factor of  $f(x) = -5x^4 - 3x^2 + 6x =$  \_\_\_\_\_

04

Is  $f(x) = 6x^4 + 6x^3 - 8x^2 + 9x - 7$  even, odd, or neither? = \_\_\_\_\_

## Part B · Logarithms

05

$\log_5 (1/5) =$  \_\_\_\_\_

06

$\log_6 36 =$  \_\_\_\_\_

07

$\log_6 1296 =$  \_\_\_\_\_

08

$\log_7 2401 =$  \_\_\_\_\_

## Part C · Trigonometry

Some answers are exact values; others are rounded (calculator approximations).

09

$\sin 62^\circ \approx$  \_\_\_\_\_

10

$\cos 45^\circ =$  \_\_\_\_\_

11

$\csc 45^\circ =$  \_\_\_\_\_

12

$\sec 45^\circ =$  \_\_\_\_\_



# Grade 12 Advanced Functions Unit Test

## Part D · Special Right Triangles

**13** In a  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle with legs 12, the hypotenuse =

Answer: \_\_\_\_\_

**14** In a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle with short leg 8, the hypotenuse =

Answer: \_\_\_\_\_

**15** In a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle with short leg 6, the hypotenuse =

Answer: \_\_\_\_\_

**16** In a  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle with legs 7, the hypotenuse =

Answer: \_\_\_\_\_

# P(x) Grade 12 Advanced Functions Unit Test (Answer Key)

## Part A · Advanced Functions

01

Using the Remainder Theorem, find the remainder when  $f(x) = x^3$  is divided by  $(x + 1) =$

-1

02

Describe the end behaviour of  $f(x) = 9x^3 - 8x^2 - 3x + 1 =$

As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow -\infty$ ; as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow +\infty$ .

03

Is  $(x)$  a factor of  $f(x) = -5x^4 - 3x^2 + 6x =$  **Yes**

04

Is  $f(x) = 6x^4 + 6x^3 - 8x^2 + 9x - 7$  even, odd, or neither? = **Neither**

## Part B · Logarithms

05

$\log_5 (1/5) =$  **-1**

06

$\log_6 36 =$  **2**

07

$\log_6 1296 =$  **4**

08

$\log_7 2401 =$  **4**

## Part C · Trigonometry

Some answers are exact values; others are rounded (calculator approximations).

09

$\sin 62^\circ \approx$  **0.88**

10

$\cos 45^\circ =$   **$\sqrt{2}/2$**

# P(x) Grade 12 Advanced Functions Unit Test (Answer Key)

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## Part C · Trigonometry (continued)

11  $\csc 45^\circ = \sqrt{2}$

12  $\sec 45^\circ = \sqrt{2}$

## Part D · Special Right Triangles

13 In a  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle with legs 12, the hypotenuse =

$12\sqrt{2}$

14 In a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle with short leg 8, the hypotenuse =

16

15 In a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle with short leg 6, the hypotenuse =

12

16 In a  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle with legs 7, the hypotenuse =

$7\sqrt{2}$