



KUWAIT COLLEGE OF SCIENCE & TECHNOLOGY  
كلية الكويت للعلوم والتكنولوجيا  
Private University جامعة خاصة

**SAMPLE ENTRANCE EXAM – Math (A)**

Student Name: \_\_\_\_\_ School: \_\_\_\_\_

Maximum Marks: 100

Duration: 90 Minutes

**Note: Attempt all the questions.**

**Question 1**

(5 marks)

What is the simplified form (شكل مبسط) of

$$\left( \frac{x^{-2}y^3z^{-1}}{2z^4y^{-2}} \right)^3$$

Exponent (الأس) answers must have positive exponents (الأس) in them.

Select one:

- a.  $\frac{8y^{-18}}{x^6z^{15}}$
- b.  $\frac{8y^{18}}{x^6z^{15}}$
- c.  $\frac{y^{18}}{8x^{-2}z^9}$
- d.  $\frac{y^{15}}{8x^6z^{15}}$

**Question 2**

(5+5=10 marks)

Solve the following absolute value equation to find  $x$ .

$$|4x - 2| - 6 = 20$$

$x =$    $\text{ and } x =$

**Question 3**

(5+5=10 marks)

Find the values of  $x$  by solving the following absolute value inequality.

$$\frac{|x + 6|}{4} - 3 \geq 6$$

$x$  is less than equal to  or  $x$  is greater than equal to

**Question 4**

(5 marks)

Solve the following equation:

$$5x - 20 = x + 4$$

$x =$

**Question 5**

(5x4=20 marks)

The quadratic function  $f(x) = x^2 + 2x - 15$

- (a) The value of  $f(-2)$  is
- (b) The solution of  $f(x) = 0$  are
- (c) The value of  $\{f(-1) + f(1)\}$  =
- (d) The value of  $(f(-2))^{-2}$

**Question 6**

(5 marks)

Find the value of  $x$

$$\left(\frac{4}{5}\right)^{x-3} = \frac{125}{64}$$

Answer:

**Question 7**

(5x2=10 marks)

A straight line is defined by the following linear equation

$$y + 4 = 2(x + 1)$$

- (a) What is the slope of the line?
- (b) What is the y-intercept of the line?

**Question 8**

(10 marks)

Find the value of  $x$ 

$$\log_4(2x+2) - \log_4(x-2) = 1$$

Answer: **Question 9**

(5x3=15 marks)

If  $f(x)$  and  $g(x)$  are real functions defined by

$$f(x) = 2x + 1, \text{ and } g(x) = 4x - 7$$

(a) for what real numbers  $x$ ,  $f(x) = g(x)$ ? Answer:  $x =$  (b) Find the value of  $f(-2) + g(3)$ . Answer: (c) Find  $\left(\frac{f}{g}\right)(2)$ . Answer: .**Question 10**

(10 marks)

The solution set of the equation  $\ln(3 - 3x) + \ln(e^3) = -5$ Answer: