



KUWAIT COLLEGE OF SCIENCE & TECHNOLOGY  
كلية الكويت للعلوم والتكنولوجيا

Private University

جامعة خاصة

**SAMPLE ENTRANCE EXAM – Math (B)**

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

$$\left( \frac{y^{-2}z^{-4}}{3x^{-5}y^{-7}z} \right)^3$$

Exponent answers must have positive exponents in them.

Select one:

- a.  $\frac{x^{15}y^{15}}{27z^{15}}$
- b.  $\frac{27x^6}{y^{15}z^3}$
- c.  $\frac{27z^3}{8x^6y^{15}}$
- d.  $\frac{z^{15}}{27x^{15}y^{15}}$

**Question 2**

(5+5=10 marks)

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

$$3|2x - 3| = 21$$

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

**Question 3**

(5+5=10 marks)

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

$$\frac{1}{11}|2x - 4| + 10 \leq 11$$

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

**Question 4**

(5 marks)

Solve the following equation:

$$2x - 10 = 7x + 5$$

$x =$

**Question 5**

(5x4=20 marks)

The quadratic function  $f(x) = x^2 + 6x + 5$

(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  $x$

$$\left(\frac{5}{3}\right)^{4x-12} = 1$$

Answer:

**Question 7**

(5+5=10 marks)

A straight line is defined by the following linear equation

$$-3y + 2(x + 1) = 5x - 7$$

(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  $x$ 

$$\log_8(x+6) - \log_8(x-1) = 1$$

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**

(5+5=10 marks)

The solution set of the equation

$$\ln(3x - 2) + \ln(e^{-3}) = 5$$

Answer: