

**Applied Mathematics for Biomedical Technology**

**King Saud University**

**College of Applied Medical Sciences**

**Biomedical Technology Department**

**First Midterm**

**Course Instructor: Dr. Widad Babiker**

**Course No. 222**

**Second Semester 1442-1442**

**Date Time: Thursday 20/7/1442ه**

**4/3/2021 الموافق**

**Time: 120 Minutes**

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| --- | --- |
| **Student’s Name** |  |
| **Student’s** ID |  |

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| --- | --- | --- | --- | --- | --- |
| **Question No.** |  |  |  |  | **Total** |
| Maximum Marks | 2.5 | 5  1.5+1.5+2 | 5  2+1.5+1.5 | 7.5  1.5+2+2+2 | 20 |
| Obtained Marks |  |  |  |  |  |

**Question I [2.5]**

**Choose the correct answer:**

1. If and , then the value of is equal to:

(a) (b) (c) (d)

1. Which equation is equivalent to ?

(a) (b) (c) (d)

1. The solution set of is equal to:

(a) (b) (c) (d)

1. The graphs of the equations and intersect in:

(a) 2 point (b) 1 point (c) 3 point (d) no intersection

1. Which is a solution or the following system of equations? and

(a) (b) (c) (d)

**Question 2 (write all details) [5]**

1. **Express the quotient in simplest form: -**

**Solution: [1.5]**

**- = -**

**= -**

**= -**

**=**

**=**

1. **Solve the given equation for**

**Solution: [1.5]**

**⇒ ⇒**

**⇒**

1. **Simplify the complex fraction**

**Solution: [2]**

**=**

**= =**

**Question 3 (write all details) [5]**

1. **Solve the following systems of equations and**

**Solution: [2]**

**Substrat**

**⇒**

**By using,** , , b =7 and c = -8, we get

**⇒**

1. **A man has 72 ft. of fencing to put around a rectangular garden. If the length is 3 times the width, find the dimensions of this garden.**

**Solution: [1.5]**

Let the width of the garden be ft , then its length is ft

3x

Since the garden is a rectangular garden then its perimeter is

, where the width an is the length

x

**⇒**  **⇒**  **⇒**

**⇒the** length = 27 ft, and the width = 9 ft

1. **Find the value of if**

**Solution: [1.5]**

**⇒**

**⇒**

**⇒**

**⇒**

**⇒**

**Question 4 (write all details) [7.5]**

1. **Solve the following systems of equations by using Cramer rule.**

**Solution: [1.5]**

, ,

1. **Solve the equation by completing the square:**

**Solution: [2]**

**⇒**

**⇒ ⇒ ⇒**

**⇒ ⇒ ⇒** **⇒**

1. **Express the quotient in simplest form:**

**Solution: [2]**

**⇒**

1. **Find the partial fraction decomposition of**

**Solution : [2]**

**⇒**

⇒ A = 2, ⇒ B = -2

**⇒** C = 2, and 4A+4B – D = - 4 **⇒** D = 4