

 Lecture Notes	Name Of Lecturer: MOMOH KAMARA
	Course Title: GENERAL MATHEMATICS
	Course Goal: To be able to teach and apply the concept of quadratic equation to basic mathematical conditions
	Class & Semester: HTC1 secondary, Semester 2 Course Status: COMPULSORY
	Course Code: Credit Hours: 2
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Date & Time: JUNE 2020	
Topic:	
QUADRATIC EQUATIONS	
Week :3-4	Lecture No.: 2
Learning Objective: By the end of the lecture students will be able to: solve problems on quadratic equation	
Questions: Solve the equation 1. $X^2+9x+20=0$ 2. $x^2 -9x +14 = 0$ 3. $6x^2-x-1=0$	Notes: A quadratic equation is in the form $ax^2+bx+c=0$, where a, b, c are integers and $a \neq 0$ SOLUTION Sum of the roots = +9 Product of the roots = +20 Factors = +4 and +5 $X^2+4x+5x+20 = 0$ $X(x+4) +5(x+4) = 0$ $(x+5)(x+4) = 0$ Either $x+5=0$ $X= -5$ Or $x+4=0$ $X= -4$ SOLUTION Sum of the roots = -9 Product of the roots = +14 Factors = -2 and -7 $X^2 -2x-7x+14=0$ $X(x-2) -7(x-2) =0$ $(x-2)(x-7)=0$ Either $x-2=0$ $X=2$ Or $x-7=0$ $X=7$ SOLUTION Sum of the roots = -1

4. $4x^2 - 10x - 6 = 0$

Product of the roots = $+6(-1) = -6$
 Factors = -3 and +2

$6x^2 - 3x + 2x - 1 = 0$
 $3x(2x-1) + 1(2x-1) = 0$
 $(3x+1)(2x-1) = 0$
 Either $3x+1=0$
 $X = -\frac{1}{3}$
 Or $2x-1=0$
 $X = 1/2$

SOLUTION

Sum of the roots = -10
 Product of the roots = $+4(-6) = -24$
 Factors = -12 and +2
 $4x^2 - 12x + 2x - 6 = 0$
 $4x(x-3) + 2(x-3) = 0$
 $(4x+3)(x-3) = 0$
 Either $4x+3=0$
 $X = -3/4$
 Or $X-3=0$
 $X = 3$

$5x^2 + 17x - 12 = 0$

SOLUTION

Sum of the roots = +17
 Product of the roots = $+5(-12) = -60$
 Factors = -3 and +20
 $5x^2 + 20x - 3x - 12 = 0$
 $5x(x+4) - 3(x+4) = 0$
 $(5x-3)(x+4) = 0$
 Either $5x-3=0$
 $X = 3/5$
 Or $x+4=0$
 $X = -4$

$25x^2 - 36 = 0$

DIFFERENCE OF TWO SQUARES

If two square terms are subtracted from each other, then their expression are in the form as shown below.

$a^2 - b^2 = (a-b)(a+b)$
 eg. $9^2 - 7^2 = (9-7)(9+7) = 2 \times 16 = 32$
 $21^2 - 9^2 = (21-9)(21+9) = 12 \times 30 = 360$

Solution

$25x^2 - 36 = 0$
 $(5x)^2 - (6)^2 = 0$
 $(5x-6)(5x+6) = 0$
 Either $5x-6=0$

	$X=6/5$ Or $5x+6=0$ $X=-6/5$
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Summary:

The concept discuss in this are intended to encourage people teaching and learning of mathematics to be able to Calculate problems on quadratic equations.

Assignment:

Solve the following equation

1. $x^2 - 6x - 16 = 0$
2. $y^2 - y - 72 = 0$
3. $10x^2 + 3x - 4 = 0$
4. $8x^2 + 2x - 15 = 0$
5. $6x^2 - 5x + 1 = 0$
6. $81m^2 - 49 = 0$
7. $125t^2 - 121 = 0$
8. $99.5^2 - 98.5^2$

Further Reading: Change of Formula**References:**

College Algebra, 8th Edition, Ron Larson, Brooks Cole, ISBN:14394869X. College Algebra and trigonometry, 7th Edition, Richard N Aufmann and Vernon C Barker, Brooks Cole, ISBN:1439048606