XT - MATHS Grade 11

Name: _____ **Class:** _____

Subject: Equations 1: Basic, Formula, Inequalities **Date:** _____

Total Marks: 64

Question 1: True/False [2] Mathematics - LO 2 : AS 5

If $x^2 - 3x - 10 = 0$, then $x = 5$ or $x = -2$.

TRUE **FALSE**

Question 2: True/False [3] Mathematics - LO 2 : AS 5

The solution to the inequality $x^2 \leq 9$ is $x \leq 3$.

TRUE **FALSE**

Question 3: Multiple Choice [4] Mathematics - LO 2 : AS 5

Determine the solution to the inequality $2x^2 + x - 1 < 0$.

A $-1 < x < ½$

B $-1 < x > ½$

C $-1 > x < ½$

D $-1 > x > ½$

E $x < -1$ or $x > ½$

Question 4: Multiple Choice [5] Mathematics - LO 2 : AS 5

If p is a root of the equation $x^2 - 2qx + q = 0$, then p = ...

A $p = q \pm \sqrt{q^2 - q}$

B $p = -q \pm \sqrt{q^2 - q}$

C $p = \frac{2q \pm \sqrt{4q^2 + 4q}}{2}$

D $p = 2q - \sqrt{q}$ or $p = \sqrt{q}$

Question 5: Multiple Choice [6] Mathematics - LO 2 : AS 5

The solution of the equation $(x^2 - 4)^2 = 9x^2$ is ...

A	$x = \pm 1;\ x = \pm 4$
B	$x = -2;\ x = 1$
C	$x = -1;\ x = 4$
D	$x = \pm 3$

Question 6: Socrates [2] Mathematics - LO 2 : AS 5

Type the solution(s) to the equation ***x(x - 2) = 0.***
If there is more than one answer, separate the answers with a semi-colon, eg ***3; -2***

Question 7: Socrates [5] Mathematics - LO 2 : AS 5

Determine the solutions to the equation ***3x² + 2x - ½= 0***, correct to two decimal places.
Type your answers separated by a semi-colon, eg ***1,35; 7,91***

Question 8: Socrates [4] Mathematics - LO 2 : AS 5

$3x^3 - 6x^2 + 3x = 0$

Solving for x in this equation, will give the roots …
Type the roots with a semi-colon between each value e.g. 3 ; 2

Question 9: Socrates [3] Mathematics - LO 2 : AS 5

If $(x - 2)^3 + 27 = 0,\quad x =$ ...

Type a number only.

Question 10: Cloze [4] Mathematics - LO 2 : AS 5

Consider the equation ***3 - 2x² = 5x***
This is an example of a (Ans 1) equation.
When written in standard form, the equation becomes (Ans 2).

1		**2**	

- linear
- quadratic
- cubic
- ***2x² + 5x - 3 = 0***
- ***2x² - 5x - 3 = 0***
- ***2x² + 5x = 3***

Question 11: Cloze [8] Mathematics - LO 2 : AS 5

In each case, solve the inequality:

1. ***x(x + 3) ≤ 0***
2. ***x(x + 3) ≤ 4***
3. ***x^2(x + 3) ≤ 0***

1		2	
3			

- ***-3 ≤ x ≤ 0***
- ***0 ≤ x ≤ -3***
- $x \leq -3$ or $x \geq 0$
- ***-4 ≤ x ≤ 1***
- $x \leq -4$ or $x \geq 1$
- ***-3 ≤ x ≤ 4***
- ***x ≤ -3***
- ***x < -3***
- $x \geq -3$

Question 12: Cloze [2] Mathematics - LO 2 : AS 5

$-3x^2 + 5x = 1$

Using the quadratic formula to solve this equation,
you will use a = - 3, b = (Ans. 1) and c = (Ans. 2).

1		2	

- -1
- 5
- ± 5
- -5
- ± 1
- 0
- 1

Question 13: Cloze [6] Mathematics - LO 2 : AS 5

$px^2 + qx + r = 0$
This equation has the following solution:

$$x = \frac{5 \pm \sqrt{25 + 4(12)}}{6}$$

The values of the unknowns could then be ...
p = (Ans. 1); q = (Ans. 2); r = (Ans. 3).

1		2	
3			

- ± 5
- ± 3
- ± 4
- -5
- 3
- -4

Question 14: Socrates [5] Mathematics - LO 2 : AS 5

$(5x - 1)(x - 1) = (x + 1)^2$

The root(s) of this equation is/are x = …
If there is more than one root, type a semi-colon between the values e.g. -3 ; 2

Question 15: Socrates [5]

Mathematics - LO 2 : AS 5

Solve for ***x***: ***(2x - 1)(x + 2) < -3***

15 Questions, 4 Pages