FORM 3 TERM 3
STRAND : ALGEBRA
TOPIC : Quadratics
KEY POINTS : quadratic expression; factorisation; differentiation between expressions and equations; solution of the quadratic equation by the method of factorisation

1) Factorise the following quadratic expressions:

a) $x^2 + 7x + 12$

b) $x^2 – 5x + 6$

c) $x^2 – 6x – 27$

d) $x^2 + 4x – 21$

2) Solve the following quadratic equations:

a) $(x + 3)(x + 5) = 0$

b $(x – 5)(x – 3) = 0$

c) $(x – 3)(x + 6) = 0$

d) $(x + 1)(x – 10) = 0$

3) Solve the following quadratic equations by the method of factorization:

a) $x^2 + 6x + 8 = 0$

b) $m^2 – 4m + 3 = 0$

c) $x^2 + 5x - 36 = 0$

d) $x^2 - 3x - 10 = 0$

e) $2x^2 – 5x – 3 = 0$

f) $3x^2 + 23x + 14 = 0$

g) $3x^2 – 11x + 6 = 0$

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4) Factorise the following Difference of Two Squares expressions:

a) $x^2 - y^2$

b) $x^2 - 2^2$

c) $4x^2 - 9$

d) $x^2 - 25$

e) $49 - x^2$

f) $9p^2 - 25q^2$

g) $144a^2 - 169b^2$

5) Write each of the following quadratic equations as a Difference of Two Squares equation and solve:

a) $x^2 - 4 = 0$

b) $x^2 - 9 = 0$

c) $x^2 - 25 = 0$

d) $9x^2 - 16 = 0$

e) $16x^2 - 49 = 0$

f) $81x^2 - 25 = 0$

ANSWERS
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1) a) $(x + 3)(x + 4)$

b) $(x – 2)(x – 3)$

c) $(x – 9)(x + 3)$

d) $(x + 7)(x – 3)$

2) a) $x = -3$ or $x = -5$

b) $x = 5$ or $x = 3$

c) $x = 3$ or $x = -6$

d) $x = -1$ or $x = 10$

3) a) $x = -2$ or $x = -4$

b) $m = 1$ or $m = 3$

c) $x = 4$ or $x = -9$

d) $x = -2$ or $x = 5$

e) $x = -\frac{1}{2}$ or $x = 3$

f) $x = -\frac{2}{3}$ or $x = -7$

g) $x = \frac{2}{3}$ or $x = 3$

4) a) $(x + y)(x – y)$

b) $(x + 2)(x – 2)$

c) $(2x + 3)(2x -3)$

d) $(x + 5)(x – 5)$

e) $(7 + x)(7 - x)$

f) $(3p + 5q)(3p – 5q)$

g) $(12a + 13b)(12a - 13b)$

5)

	Difference of Two Squares Equation	**Solutions**
a)	$x^2 - 2^2 = 0$	$x = 2$ or $x = -2$
b)	$x^2 - 3^2 = 0$	$x = 3$ or $x = -3$
c)	$x^2 - 5^2 = 0$	$x = 5$ or $x = -5$
d)	$(3x)^2 - 4^2 = 0$	$x = \frac{4}{3}$ or $x = \frac{-4}{3}$
e)	$(4x)^2 - 7^2 = 0$	$x = \frac{7}{4}$ or $x = \frac{-7}{4}$
f)	$(9x)^2 - 5^2 = 0$	$x = \frac{5}{9}$ or $x = \frac{-5}{9}$