KEY

First Name: _____ Last Name: _____

L18 – LQ – 4.2 Factoring Quadratic Equations

Q1: The roots of the equation $2x^2 = 4x + 6$ are $x = \overset{+3}{a}, \overset{-1}{-b}$, where ***a*** and ***b*** are ___ and ___.

Reminder: The "roots" of the quadratic are the numbers that satisfy the quadratic equation.

(Record your answer in the Numerical Response boxes below)

3	1		

$2x^2 = 4x + 6$

$-4x \quad -4x$

$2x^2 - 4x = 6$

$-6 \quad -6$

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

$2(x^2 - 2x - 3) = 0$

$2(x - 3)(x + 1) = 0$

$x - 3 = 0$ → $x = 3$

$x + 1 = 0$ → $x = -1$

Q2: Factor the expression. *(2 marks)*

$(x - 5)^2 + 8(x + 5) + 12$ Let $y = x - 5$

$y^2 + 8y + 12$

$(y + 2)(y + 6)$ 1 mark

$(x - 5 + 2)(x - 5 + 6)$

$(x - 3)(x + 1)$ 1 mark

FLIP PAGE TO CONTINUE

KEY

Q3: Solve the Rational Equation *(this **will not** be on your Chapter 4 SQ, but will be on the Unit Test... don't forget to keep reviewing it).*

(2 marks)

$$\frac{x+3}{x+5}+\frac{x+4}{x+6}=\frac{5}{6}$$

½ mark $\frac{x+3}{x+5}\left(\frac{x+6}{x+6}\right)\left(\frac{6}{6}\right)+\frac{x+4}{x+6}\left(\frac{x+5}{x+5}\right)\left(\frac{6}{6}\right)=\frac{5}{6}\left(\frac{x+5}{x+5}\right)\left(\frac{x+6}{x+6}\right)$ $x\neq -6,-5$

$$\frac{(x^2+9x+18)6}{(x+5)(x+6)(6)}+\frac{(x^2+9x+20)(6)}{(x+6)(x+5)(6)}\qquad\frac{(5)(x^2+11x+30)}{(6)(x+5)(x+6)}$$

Looking at numerator...

$$(6x^2+54x+108)+(6x^2+54x+120)=(5x^2+55x+150)$$

$$12x^2+108x+228=5x^2+55x+150$$
$$-5x^2 \qquad -5x^2$$

$$7x^2+108x+228=55x+150$$
$$-55x \qquad -55x$$

$$7x^2+53x+228=150$$
$$-150 \qquad -150$$

½ mark $7x^2+53x+78=0$

+14 +39
□ + □ = 53
□ × □ = 546

1,546
2,273
3,182
6,91
7,78
13,42
14,39

$$7x^2+14x+39x+78=0$$
$$(7x^2+14x)+(39x+78)=0$$
$$7x(x+2)+39(x+2)=0$$
$$(x+2)(7x+39)=0$$

½ mark $x=-2$ $x=-\frac{39}{7}$ ½ mark

MARKING:

Beginning	0 – 2.0
Progressing	2.5 – 3.5
Competent	4.0 – 4.5
Exemplary	5.0