Algebra 201-007-50 C2
Quiz 8
October 29, 2008

Name: SOLUTIONS

Student Number:

1. Solve:

a) *(3 marks).*

$$x^2 - 12x = 45$$

$x^2 - 12x - 45 = 0$

$(x - 15)(x + 3) = 0$

$x - 15 = 0$ $\qquad$ $x + 3 = 0$

$x = 15$ $\qquad$ $x = -3$

$\therefore \boxed{x = -3, 15}$

b) *(3 marks).*

$$x^3 - 49x = 0$$

$x(x-49) = 0$

$x(x+7)(x-7) = 0$

$x = 0$ | $x + 7 = 0$, $x = -7$ | $x - 7 = 0$, $x = 7$

$\therefore$ **$x = -7, 0, 7$**

c) *(4 marks).*

$$4x^3 - 30x = 14x^2$$

$4x^3 - 14x^2 - 30x = 0$

$2x(2x^2 - 7x - 15) = 0$

$2x(x-5)(2x+3) = 0$

$2x = 0$, $x = 0$ | $x - 5 = 0$, $x = 5$ | $2x + 3 = 0$, $2x = -3$, $x = -\frac{3}{2}$

$A \cdot B = -30$; $A = -10$

$A + B = -7$; $B = 3$

$2x^2 - 7x - 15$

$= 2x^2 - 10x + 3x - 15$

$= 2x(x-5) + 3(x-5)$

$= (x-5)(2x+3)$

$\therefore$ $x = -\frac{3}{2}, 0, 5$