Math 002 P1 **Name:** Solutions

Quiz # 8

November 11, 2014 No electronic devices or interpersonal communication allowed. Show work to get credit.

(1) Solve the equation $2x^2 - x - 6 = 0$ by factoring.

$u \cdot v = -12$, $u + v = -1$ $\Rightarrow$ -4 & 3

$2x^2 - 4x + 3x - 6$

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

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

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

$2x+3=0$ OR $x-2=0$

$\boxed{x = -\frac{3}{2} \text{ OR } x = 2}$

(2) Solve the equation $2x^2 + 4x - 7 = 0$ by completing the square.

$x^2 + 2x - \frac{7}{2} = 0$

$x^2 + 2x = \frac{7}{2}$

$(x+1)^2 = \frac{7}{2} + 1 = \frac{9}{2}$

$x + 1 = \pm\sqrt{\frac{9}{2}} = \pm\frac{3}{\sqrt{2}}$

$x = -1 \pm \frac{3}{\sqrt{2}}$

$\boxed{x = -1 \pm \frac{3}{\sqrt{2}}}$

(3) Solve the equation $9x^2 - 12x + 4 = 0$ by using the quadratic formula.

$$x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(9)(4)}}{2(9)} = \frac{12 \pm \sqrt{144 - 144}}{2(9)} = \frac{12}{18} = \boxed{\frac{2}{3}}$$

(4) Solve the equation $9x^2 - 12x + 3 = 0$ by using the quadratic formula.

$$x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(9)(3)}}{2(9)} = \frac{12 \pm \sqrt{144 - 108}}{18}$$

$$= \frac{12 \pm \sqrt{36}}{18} = \frac{12 \pm 6}{18}$$

$x = \frac{12+6}{18} = \boxed{1}$ OR $x = \frac{12-6}{18} = \frac{6}{18} = \boxed{\frac{1}{3}}$