Adv. Algebra 2 – Concept Quiz

Form A

Name: *key

Date: _____ Period: _____

9. Solving Quadratic Equations

Solve the quadratic equations below using at least 3 different methods.

a) $x^2 + 2x + 81 = -8$

$+8 \quad +8$

$x^2+2x+89=0$

$x^2+2x+1=-89+1$

$(x+1)^2=-88$

$x+1=\pm\sqrt{-88}$

$\sqrt{-88}=\sqrt{-1}\cdot\sqrt{4}\cdot\sqrt{22}$

$=i\cdot 2\cdot\sqrt{22}$

$x+1=\pm 2i\sqrt{22}$

$x=-1\pm 2i\sqrt{22}$

b) $x^2 + 11x = -30$

$x^2+11x+30=0$

$(x+6)(x+5)=0$

$x=-6,-5$

c) $11x^2 - 8x = -4$

$11x^2-8x+4=0$

$x=\dfrac{8\pm\sqrt{(-8)^2-4(11)(4)}}{2(11)}$

$\dfrac{8\pm\sqrt{64-176}}{22}$

$\dfrac{8\pm\sqrt{-112}}{22}$

$=\sqrt{-112}$

$=\sqrt{-1}\cdot\sqrt{16}\cdot\sqrt{7}$

$=i\cdot 4\cdot\sqrt{7}$

$\dfrac{8\pm 4i\sqrt{7}}{22}$

$x=\dfrac{4\pm 2i\sqrt{7}}{11}$

d) $5x^2 - 10x + 25 = 15$

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

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

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

$x-1=\pm\sqrt{-1}$

$x=1\pm i$

Adv. Algebra 2 – Concept Quiz

Form B

Name: Key

Date: _____ Period: _____

9. Solving Quadratic Equations

Solve the quadratic equations below using at least 3 different methods.

a) $x^2 + 18x + 87 = 5$

$x^2+18x+82=0$

$x^2+18x+81=-82+81$

$(x+9)^2=-1$

$x+9=\pm\sqrt{-1}$

$x=-9\pm i$

b) $3x^2 - 9x = 30$

$x^2-3x=10$

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

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

$x=5,-2$

c) $x^2 - 12x + 73 = -7$

$x^2-12x+36=-80+36$

$(x-6)^2=-44$

$x-6=\sqrt{-44}$

$\sqrt{-44}$

$\sqrt{-1}\cdot\sqrt{4}\cdot\sqrt{11}$

$i\cdot 2\cdot\sqrt{11}$

$x-6=\pm 2i\sqrt{11}$

$x=6\pm 2i\sqrt{11}$

d) $3x^2 + 2 = 4x$

$3x^2-4x+2=0$

$\frac{4\pm\sqrt{(-4)^2-4(3)(+2)}}{2(3)}$

$\frac{4\pm\sqrt{16-24}}{6}$

$\frac{4\pm\sqrt{-8}}{6}$

$\frac{4\pm 2i\sqrt{2}}{6}=\frac{2\pm i\sqrt{2}}{3}$