AAT

HW 27
p117

43. $9x^2-18x+3=0$
$9(x^2-2x+1)-9+3=0$
$9(x-1)^2-6=0$
$(x-1)^2=6/9$
$(x-1)^2=2/3$
$x-1=\pm\sqrt{2/3}$
$\boxed{x=\pm\sqrt{\frac{2}{3}}+1}$

44. $4x^2-4x-1=0$
$4(x^2-x+1/4)-1-1=0$
$4(x-1/2)^2-2=0$
$(x-1/2)^2=2/4$
$x-1/2=\pm\sqrt{2}/2$
$\boxed{x=\frac{1\pm\sqrt{2}}{2}}$

45. $-x^2+2x+7=0$
$-1(x^2-2x+1)+1+8=0$
$-1(x-1)^2+9=0$
$-1(x-1)^2=-9$
$(x-1)^2=9$
$x-1=\pm3$
$x=1\pm3$
$\boxed{x=4}$
$\boxed{x=-2}$

65. $D=(-5)^2-4(2)(5)$
$D=25-40$
$D=-15$
no real roots

66. $D=(-4)^2-4(-5)(1)$
$D=16+20$
$D=36$
2 real roots

67. $D=(-1)^2-4(2)(-1)$
$D=1+8=9$
2 real roots

68. $D=(-4)^2-4(1)(4)$
$D=16-16$
$D=0$
1 real root

79. $x=\frac{-12\pm\sqrt{12^2-4(1)(16)}}{2(1)}$

$x=\frac{-12\pm\sqrt{80}}{2}$

$x=\frac{-12\pm4\sqrt{5}}{2}$

$\boxed{x=-6\pm2\sqrt{5}}$

80. $x^2+4x-8=0$

$$x=\frac{-4\pm\sqrt{16-4(1)(-8)}}{2(1)}$$

$$x=\frac{-4\pm\sqrt{48}}{2}$$

$$x=\frac{-4\pm4\sqrt{3}}{2}$$

$$\boxed{x=-2\pm2\sqrt{3}}$$

81. $x=\frac{-8\pm\sqrt{64-4(1)(-4)}}{2}$

$$x=\frac{-8\pm\sqrt{80}}{2}$$

$$x=\frac{-8\pm4\sqrt{5}}{2}$$

$$\boxed{x=-4\pm2\sqrt{5}}$$

82. $x=\frac{3\pm\sqrt{9-4(2)(-4)}}{2}$

$$x=\frac{3\pm\sqrt{41}}{2(2)}$$

$$\boxed{x=\frac{3\pm\sqrt{41}}{4}}$$

83. $0=9x^2-12x-3$

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

$$x=\frac{12\pm\sqrt{252}}{18}$$

$$x=\frac{12\pm6\sqrt{7}}{18}$$

$$\boxed{x=\frac{2\pm\sqrt{7}}{3}}$$

144. a) iv
b) iii
c) i
d) ii

145. $y=(x-3)(x+5)$

146. $y=(x+6)(x+9)$

147. $y=(x-8)(x-14)$

148. $y=(6x-1)(5x+2)$