

PR97 R2.3

$$s = -16t^2 + v_0t + s_0$$

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R2.3

p R97

$$s = -16t^2 + v_0t + s_0$$

$$3000 = -16t^2 + (0)t + 12500$$

-3000
-3000

$$0 = -16t^2 + 9500$$

$$0 = -4(4t^2 - 2375)$$

$$\sqrt{16t^2} = \sqrt{9500}$$

$$4t = \pm 97.47$$

$$t = \pm 24.37$$

$$24.37 \text{ sec}$$

77. ^{PRIOR}

$$R = xp$$

$$500,000 = x(20 - .0002x)$$

$$500,000 = 20x - .0002x^2$$

$\begin{matrix} -20x & -20x & +.0002x^2 \\ +.0002x^2 & & \end{matrix}$

$$\frac{.0002x^2}{.0002} - \frac{20x}{.0002} + \frac{500,000}{.0002} = 0$$

$$x^2 - 100,000x + 2,500,000,000 = 0$$

$$(x - 50,000)(x - 50,000) = 0$$

$$x - 50,000 = 0 \quad x - 50,000 = 0$$

$$x = 50,000$$

50,000 units

81. PR103

in thousands

$$t=0 \quad 1800$$

$$t=1 \quad 1810$$

$$t=2 \quad 1820$$

$$250,000 = 694.59t^2 + 6179$$

 -6179 -6179

$$243,821 = 694.59t^2$$

 694.59 694.59

$$\sqrt{251.03} = \sqrt{t^2}$$

$$\pm 18.74 = t$$

1874

$$t=0 \quad 1800$$

$$t=1 \quad 1810$$

1987

$$288,369 = 694.59t^2 + 6179$$

$$\sqrt{406.27} = \sqrt{t^2}$$

$$\pm 20.16 = t$$

20.16

2002

85 \neq R103 $t=5$ 1995

$$920 = 1.57t^2 + 708$$

-708

-708

$$\frac{212}{1.57} = \frac{1.57t^2}{1.57}$$

$$135.03 = t^2 \quad 1980$$

$$\pm 11.62 = t \quad t=5 \quad 1995$$

$$11.62 = t \quad t=11 \quad 2002$$

$$5 \leq t \leq 11$$

1995

2001

$$R2.4 \quad ax^2 + bx + c = 0$$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve $x^2 + 3x = 9$
 Set = 0 $x^2 + 3x - 9 = 0$

$a=1$
 $b=3$
 $c=-9$

$$x = \frac{-3 \pm \sqrt{3^2 - 4(1)(-9)}}{2(1)}$$

$$x = \frac{-3 \pm \sqrt{9 + 36}}{2}$$

$$x = \frac{-3 \pm \sqrt{45}}{2}$$

$$x = \frac{-3 \pm 3\sqrt{5}}{2}$$