

49 p R111

$$(x)^2 + (x+1)^2 = 113$$

$$x^2 + x^2 + 2x + 1 = 113$$

$$2x^2 + 2x - 112 = 0$$

$$2(x^2 + x - 56) = 0$$

$$2(x-7)(x+8) = 0$$

$$2 \neq 0 \quad x-7=0 \quad x+8=0$$

$$x=7$$

$$x=-8$$

7,8

-8,-7

53. PR III

$$1680 = 800 + 0.04x + 0.002x^2$$

$$.002x^2 + .04x - 880 = 0$$

$$R = xP$$

$$500,000 = x(20 - .002x)$$

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

$$.0002x^2 - 20x + 500,000 = 0$$

$$\frac{.0002}{.0002} \quad \frac{20}{.0002} \quad \frac{500,000}{.0002}$$

$$x^2 - 100,000 + 25,000,000,000 = 0$$

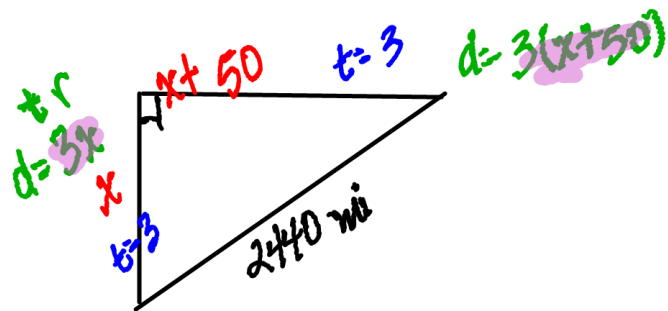
$$(x - 50,000)(x - 50,000) = 0$$

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

$$x = 50,000$$

R2.5

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



$$(3x)^2 + (3x+150)^2 = 2440^2$$

$$9x^2 + 9x^2 + 900x + 22500 = 5,953,600$$

$$18x^2 + 900x - 5,931,100 = 0$$

$$x = \frac{-900 \pm \sqrt{900^2 - 4(18)(-5,931,100)}}{2(18)}$$

$$x = \frac{-900 \pm \sqrt{810,000 + 427,849,200}}{36}$$

$$x = \frac{-900 \pm \sqrt{427,849,200}}{36}$$

$$x = \frac{-900 + \sqrt{427,849,200}}{36}$$

$$x = 549. \dots$$

550 mph South
600 mph East

<http://youtu.be/U7q5fgGyqxk>

Quadratic Formula

29.

$$(y-5)^2 = 2y$$

$$y^2 - 10y + 25 = 2y$$

$$y^2 - 12y + 25 = 0$$

$$x = \frac{12 \pm \sqrt{12^2 - 4(1)(25)}}{2(1)}$$

$$x = \frac{12 \pm \sqrt{144 - 100}}{2}$$

$$x = \frac{12 \pm \sqrt{44}}{2}$$

$$x = \frac{12 \pm 2\sqrt{11}}{2}$$

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