

$$5) f(x) = 4000 - x - \frac{3000000}{x}, x > 0$$

to find level of output that maximizes profit:  $f'(x) = 0$ .

$$f'(x) = -1 + \frac{3000000}{x^2} = 0.$$

roots

$$x_1 = 1000\sqrt{3}$$

$$x_2 = -1000\sqrt{3}$$