

IN-CLASS ASSIGNMENT: Perfect Competition

Wednesday, April 23rd

5 points

Name: ANSWER KEY

1. Let price equal \$130 and cost equal $\frac{1}{3}q^3 + 25q + 500$

a. What is the profit maximizing amount of output?

$$MR = MC$$

$$130 = q^2 + 25$$

$$\sqrt{105} = \sqrt{q^2}$$

$$q = 10.25$$

b. What is the firm's profit?

$$\pi = \text{Revenue} - \text{cost}$$

$$= 130(10.25) - \frac{1}{3}(10.25)^3 - 25(10.25) - 500$$

$$= \$217.28$$

c. At what price do firms break even?

$$P = AC_{\min} = MC$$

$$\frac{1}{3}q^2 + 25 + \frac{500}{q} = q^2 + 25$$

$$\frac{2}{3}q^2 = \frac{500}{q}$$

$$q^3 = 750$$

$$q = 9.08$$

$$P = MC = q^2 + 25 = (9.08)^2 + 25 = \$107$$

