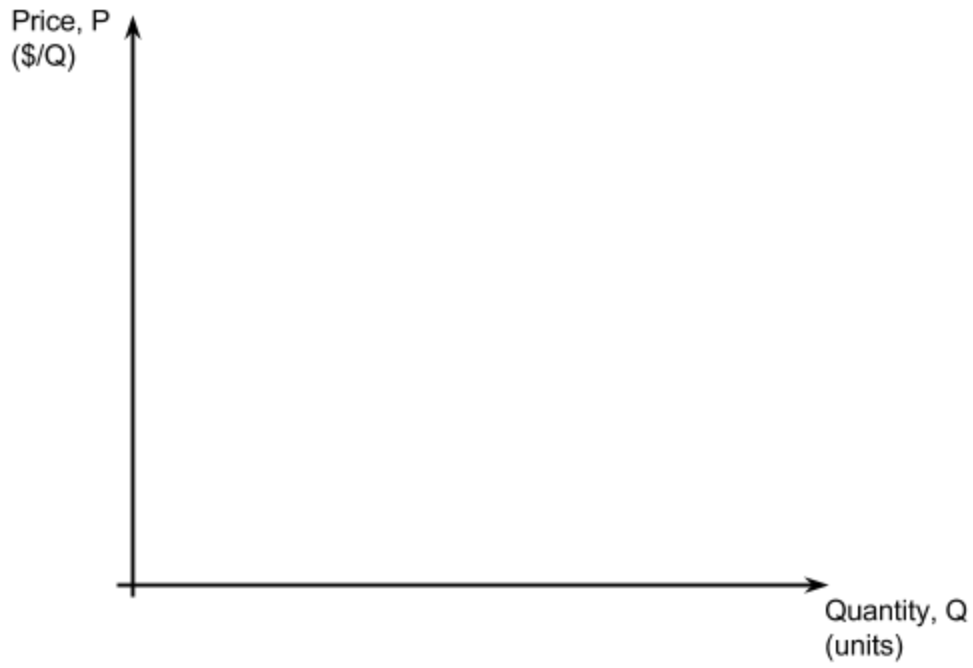
B. Illustrate and Explain

1. Suppose that the initial market equilibrium price of gasoline, P_1*, is \$2.00 per gallon (P_1* = \$2.00) and the initial market equilibrium quantity is Q_1*. Suppose that at the initial market equilibrium, gasoline demand is **inelastic** and gasoline supply is **elastic**. In the graph below, illustrate and ***explain*** the effect of an ***increase*** in price of crude oil (say from \$30/barrel to \$50/barrel) on the **total revenue of gasoline producers**. Justify your conclusion by showing graphically the effects on total revenue caused by (i) the change in the equilibrium price of gasoline and (ii) the change in the equilibrium quantity of gasoline. Recall that crude oil is an **input** of gasoline. (10 points)

Please make sure that your text boxes can be read easily! Thanks!



2. The table below gives cost data for Acme, Inc., a perfectly competitive, profit-maximizing widget firm. ***Fill*** in the blanks and highlight one of the responses in each set of brackets. (15 points)

a) If the market price of a widget is **$60** and ACME produces 150 widgets, then Acme [is | is not] maximizing its profits because MR(150) = $_____ [< | = | >] $_____ and Acme's profits are 150 widgets are $\Pi(150)$ = $_____ (i.e., calculate $\Pi(150)$).

b) If the price of a widget is **$60**, then Acme's profit maximizing output level, Q_1*, is _____ units and its profits at Q_1* are $\Pi(Q_1^*)$ = $_____ (i.e., calculate $\Pi(Q_1^*)$).

c) Suppose that the price decreases to **$30** and the firm produces **140** units of output. If the firm produces and *sells one more widget* (141) then its profits will [increase | decrease] by $_____.

d) If the price decreases to **$12**, then Acme's profit maximizing (or loss minimizing) output level, Q_2*, is _____ units and its profits at Q_2* are $\Pi(Q_2^*)$ = $_____ (i.e., calculate $\Pi(Q_2^*)$).

Q	TVC	TC	MC	AFC	AVC	ATC
50	$1,958	$5,958	22.5	80.00	39.17	119.17
60	$2,160	$6,160	18.0	66.67	36.00	102.67
70	$2,322	$6,322	14.5	57.14	33.17	90.31
80	$2,453	$6,453	12.0	50.00	30.67	80.67
90	$2,565	$6,565	10.5	44.44	28.50	72.94
100	$2,667	$6,667	10.0	40.00	26.67	66.67
110	$2,768	$6,768	10.5	36.36	25.17	61.53
120	$2,880	$6,880	12.0	33.33	24.00	57.33
130	$3,012	$7,012	14.5	30.77	23.17	53.94
140	$3,173	$7,173	18.0	28.57	22.67	51.24
150	$3,375	$7,375	22.5	26.67	22.50	49.17
160	$3,627	$7,627	28.0	25.00	22.67	47.67
170	$3,938	$7,938	34.5	23.53	23.17	46.70
180	$4,320	$8,320	42.0	22.22	24.00	46.22
190	$4,782	$8,782	50.5	21.05	25.17	46.22
200	$5,333	$9,333	60.0	20.00	26.67	46.67
210	$5,985	$9,985	70.5	19.05	28.50	47.55
220	$6,747	$10,747	82.0	18.18	30.67	48.85
230	$7,628	$11,628	94.5	17.39	33.17	50.56
240	$8,640	$12,640	108.0	16.67	36.00	52.67
250	$9,792	$13,792	122.5	16.00	39.17	55.17
260	$11,093	$15,093	138.0	15.38	42.67	58.05
270	$12,555	$16,555	154.5	14.81	46.50	61.31
280	$14,187	$18,187	172.0	14.29	50.67	64.95
290	$15,998	$19,998	190.5	13.79	55.17	68.96
300	$18,000	$22,000	210.0	13.33	60.00	73.33