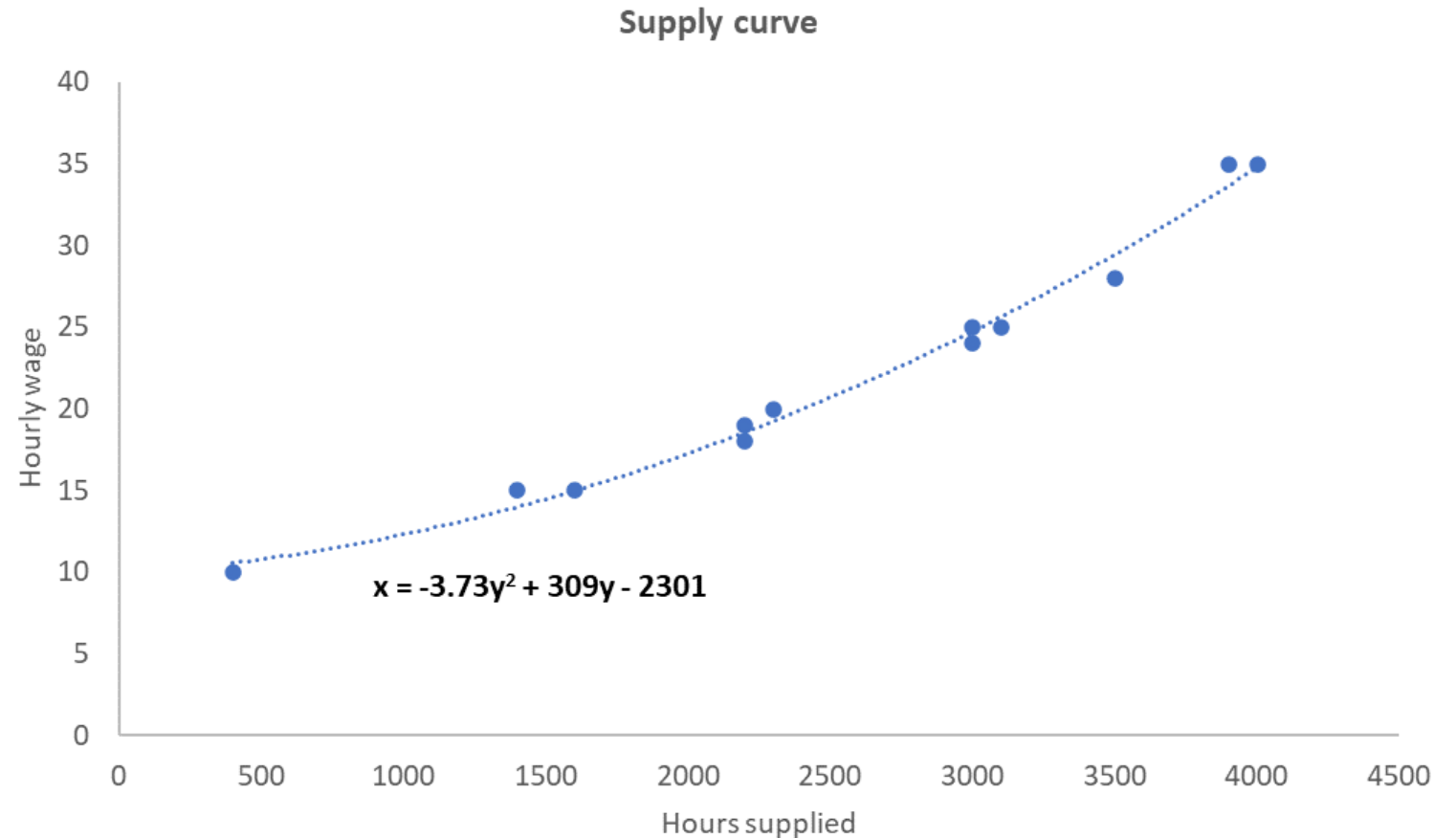Exercises

SUPPLY

Elasticity of supply

A temporary employment agency providing student labour to agriculture collected these data of hourly wage it was proposing every month last year and hours of labour its pool of students supplied:

Month	Hourly wage	Hours supplied
1	15	1600
2	18	2200
3	24	3000
4	20	2300
5	10	400
6	25	3100
7	35	4000
8	35	3900
9	28	3500
10	25	3000
11	19	2200
12	15	1400

Supply curve

$x = -3.73y^2 + 309y - 2301$

1. Calculate the elasticity of supply
2. By how much should the agency raise its wage next July to attract 5% more student-hours?

Elasticity of supply – answered

Supply function: $x = -3.73y^2 + 309y - 2301$ with x = hours supplied and y = hourly wage

$dx/dy = -7.46y + 309$; elast. = $(dx/dy)/(x/y) = (-7.46y + 309)/(-3.73y + 309 - 2301/y)$

Month	Hourly wage	Hours supplied	Fitted hours supplied	Elasticity
1	15	1600	1498	1.97
2	18	2200	2057	1.53
3	24	3000	2972	1.05
4	20	2300	2392	1.34
5	10	400	418	5.60
6	25	3100	3099	0.99
7	35	4000	3952	0.42
8	35	3900	3952	0.42
9	28	3500	3433	0.82
10	25	3000	3099	0.99
11	19	2200	2228	1.43
12	15	1400	1498	1.97

Hourly wage	Fitted hours supplied	Elasticity
10	418	5.60
11	649	
+10%	+55%	5.52

Hourly wage	Fitted hours supplied	Elasticity
35	3952	0.42
36	3997	
+2.9%	+1.1%	0.39

For 5% more supply in July, the wage must increase by 5%/0.42 = 12% or about 4 to reach 39