



115



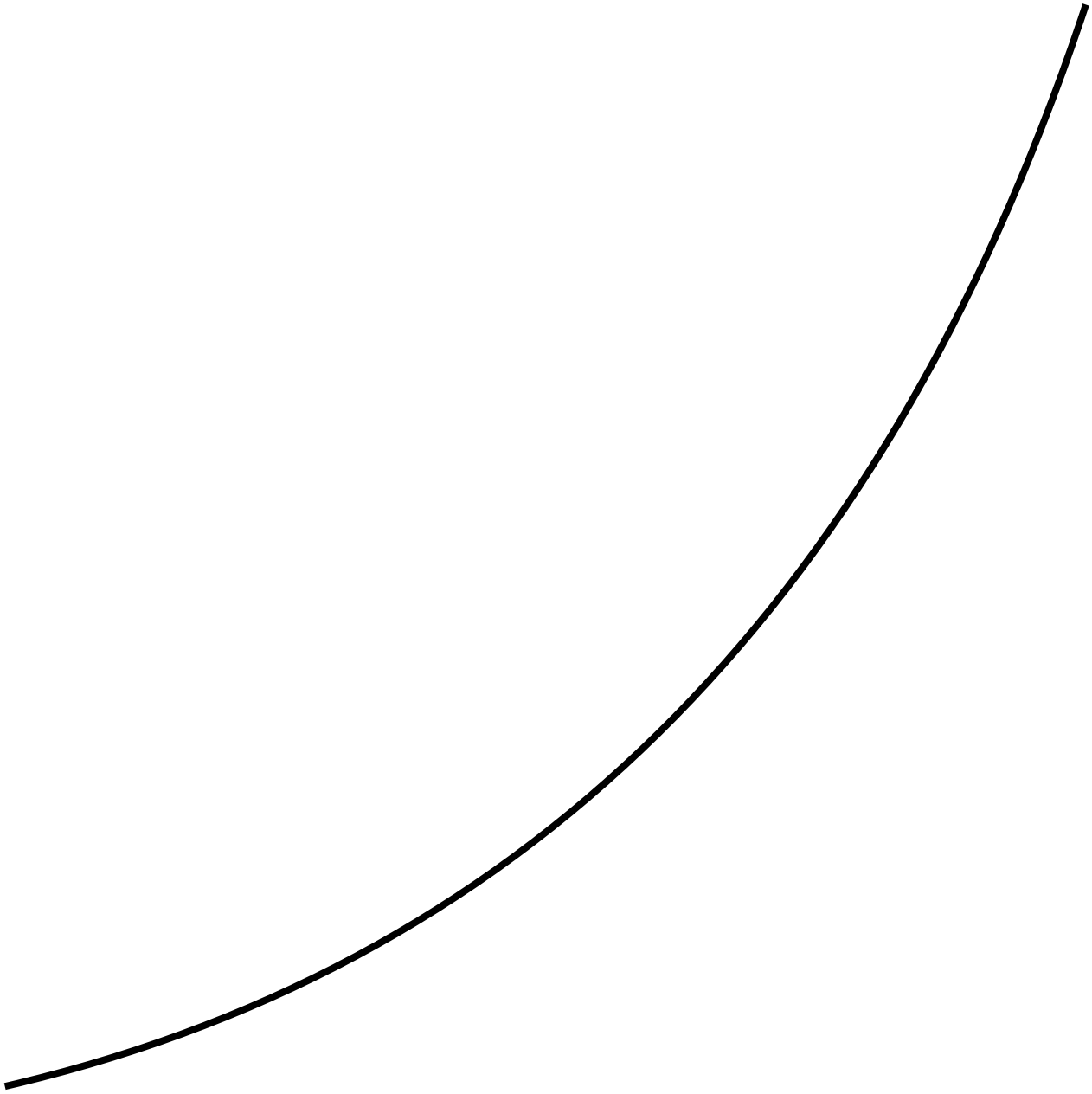


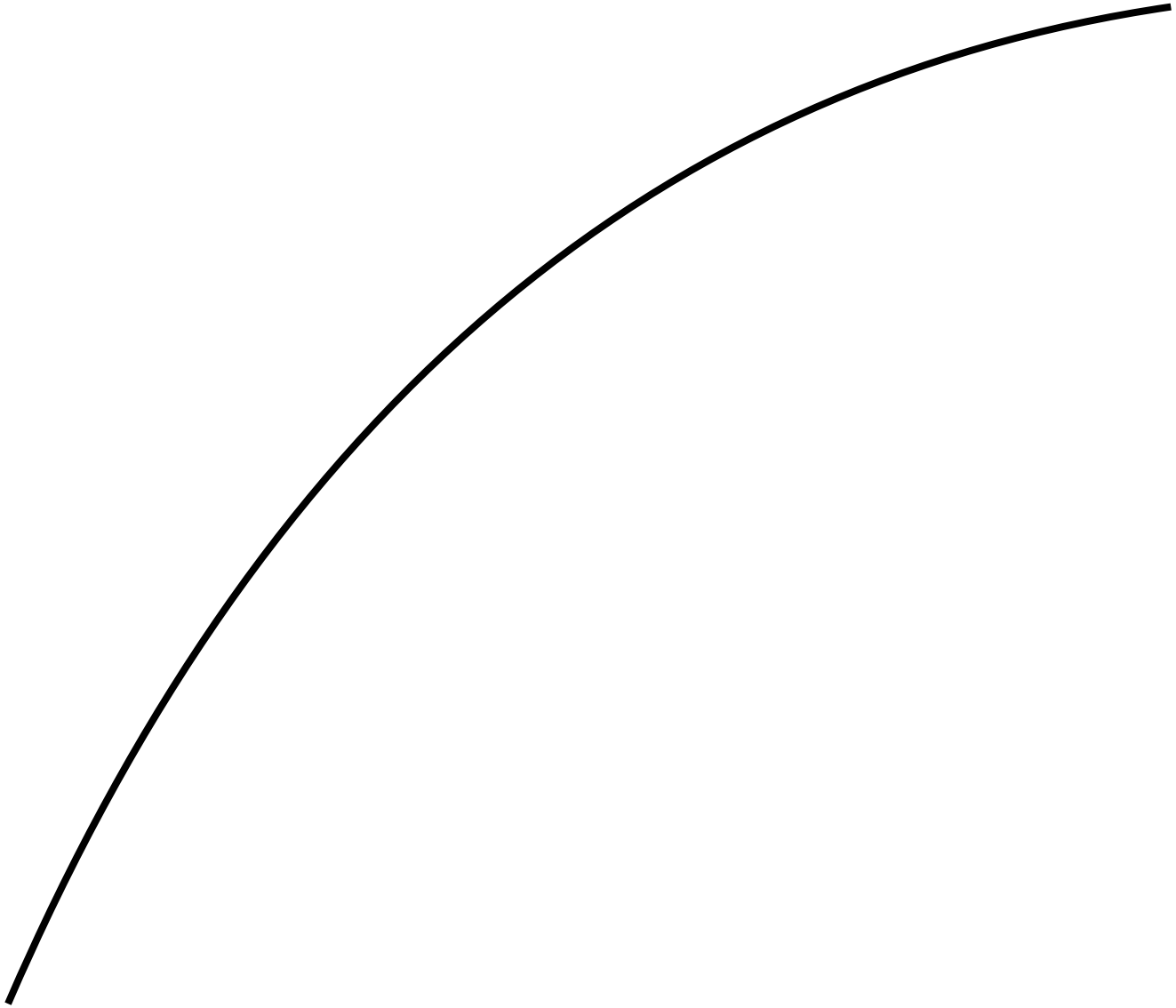


















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63 . - - - - -

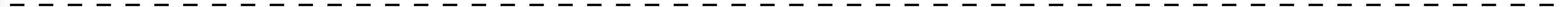
102



91



78



110



117































17



Using the Total Product (TP) to calculate the  
Marginal Product (MP)

TP







Labor	TP
0	0
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	



































5

12

21

33

47

63



78

91

102

110

115

117

115

110



102

91

15







12



14



16





15



13



1

1



8

15

12

$$\text{MP}_{13} = -2$$



$$MP_{15} = -8$$





$$MP_{17} = -13$$

MP

-

$$5 - 0 = 5$$

$$12 - 5 = 7$$

$$21 - 12 = 9$$

$$33 - 21 = 12$$

$$47 - 33 = 14$$

$$63 - 47 = 16$$



$$78 - 63 = 15$$

$$91 - 78 = 13$$

$$102 - 91 = 11$$

$$110 - 102 = 8$$

$$115 - 110 = 5$$

$$117 - 115 = 2$$

78

$$115 - 117 = -2$$



$$110 - 115 = -5$$

$$112 - 110 = -8$$

$$91-102 = -11$$

$$78 - 91 = -13$$

$$I_{MP_{14}} = -5$$

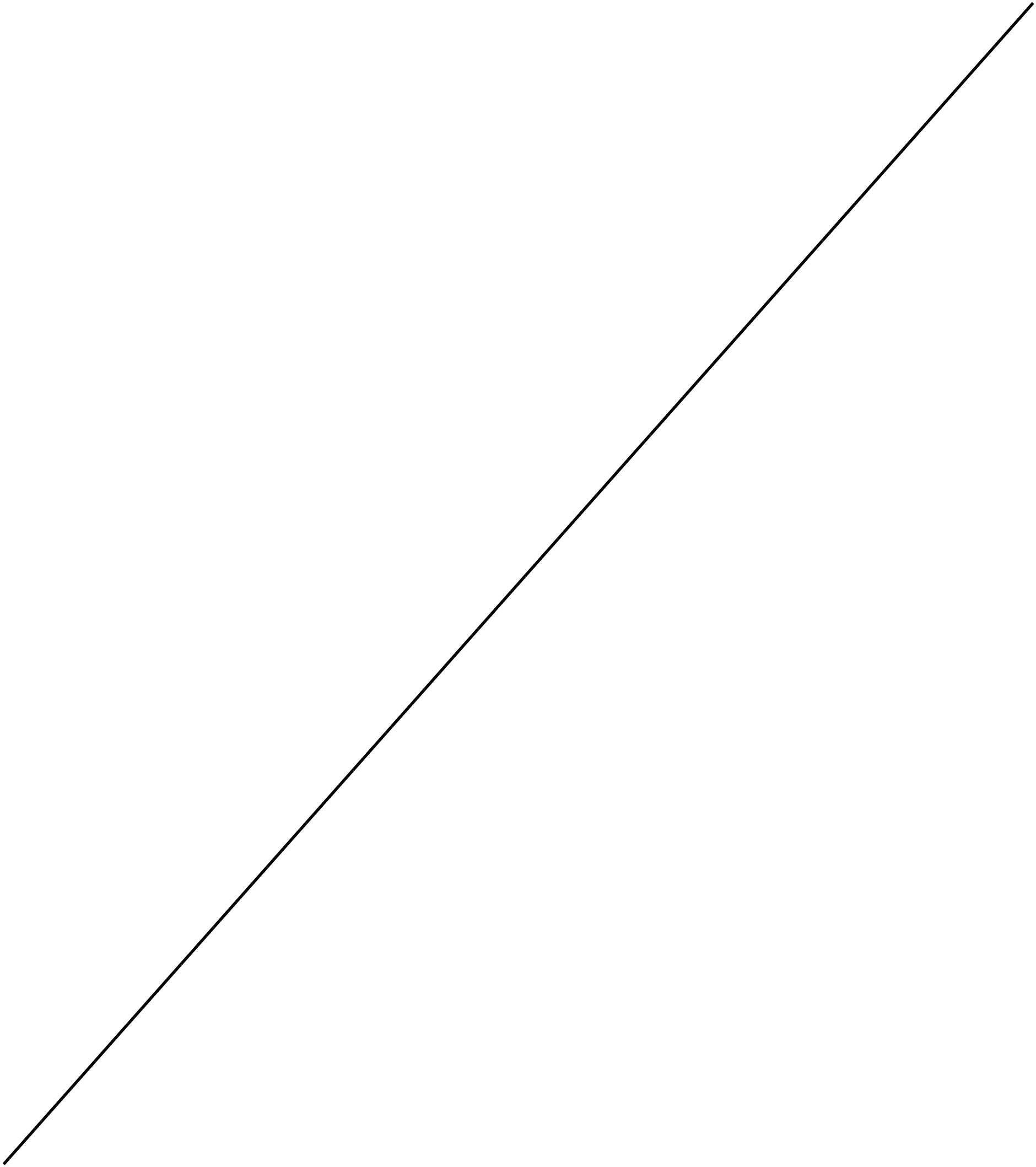


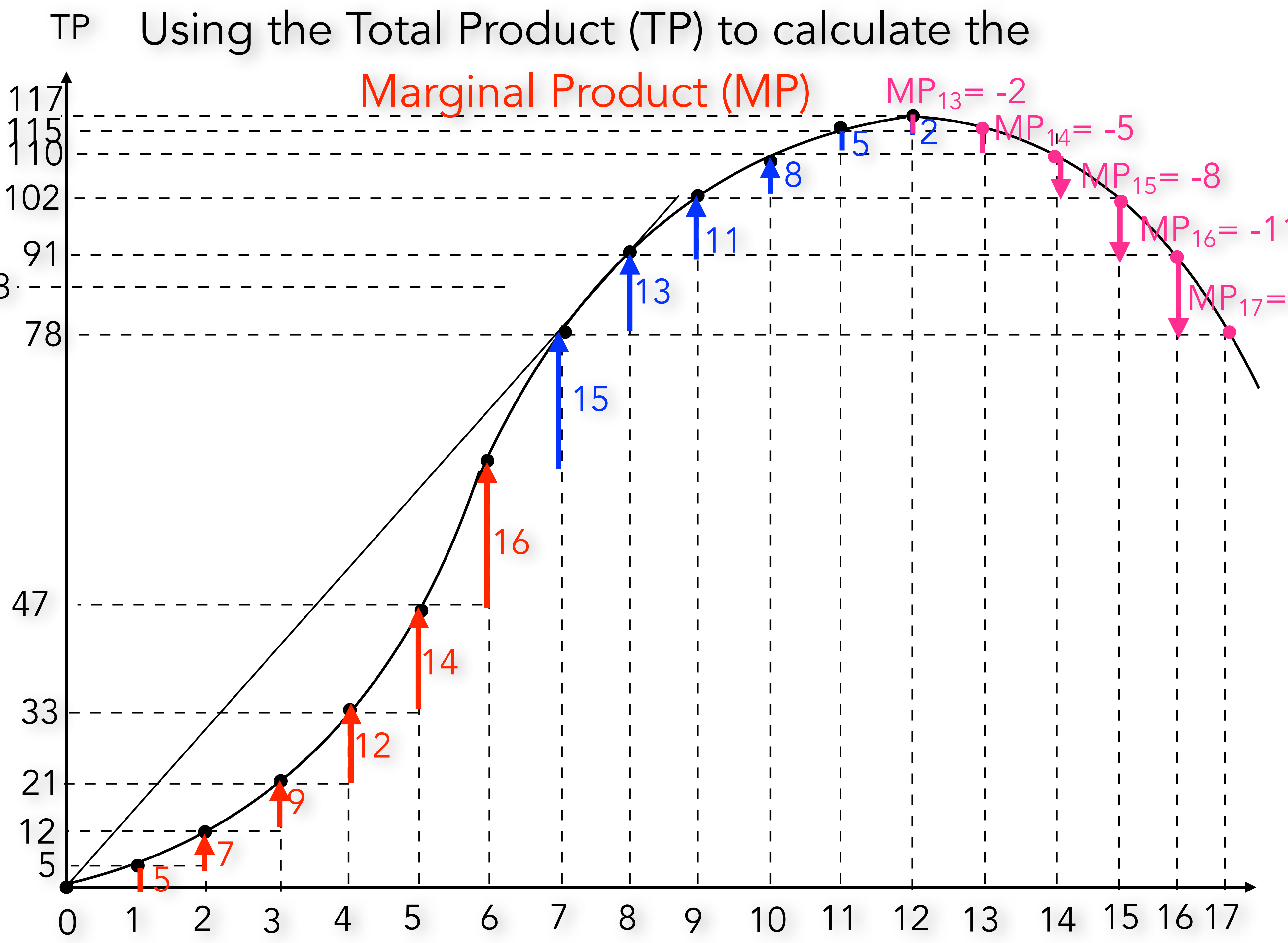
$$\text{MP}_{16} = -11$$











Labor	TP	MP
0	0	-
1	5	$5 - 0 = 5$
2	12	$12 - 5 = 7$
3	21	$21 - 12 = 9$
4	33	$33 - 21 = 12$
5	47	$47 - 33 = 14$
6	63	$63 - 47 = 16$
7	78	$78 - 63 = 15$
8	91	$91 - 78 = 13$
9	102	$102 - 91 = 11$
10	110	$110 - 102 = 8$
11	115	$115 - 110 = 5$
12	117	$117 - 115 = 2$
13	115	$115 - 117 = -2$
14	110	$110 - 115 = -5$
15	102	$102 - 110 = -8$
16	91	$91 - 102 = -11$
17	78	$78 - 91 = -13$

# Measures of Labor Productivity