

1. Determine the grade between the points on the highway profile in percent to three decimal places:

a. PI = 20+70
 EL = 504.00

 PI = 23+50
 EL = 498.00

 PI = 26+60
 EL = 503.00

b. PI = 40+00
 EL = 461.00

 PI = 46+00
 EL = 459.00

 PI = 52+00
 EL = 465.00

c. PI = 55+00
 EL = 474.00

 PI = 59+00
 EL = 469.00

 PI = 64+00
 EL = 477.50

 PI = 67+00
 EL = 477.50

d. PI = 67+00
EL = 453.00

PI = 70+50
EL = 463.00

PI = 74+50
EL = 455.50

PI = 79+00
EL = 461.70

e. PI = 29+25
EL = 445.00

PI = 32+50
EL = 432.00

PI = 37+75
EL = 432.00

PI = 41+00
EL = 437.70

2. Compute the grade for each tangent of the highway profile and elevation for each full station on the tangents:

<u>Point</u>	<u>Station</u>	<u>Tangent Elevation</u>
PI	25+00	466.00
PI	31+00	458.00
PI	35+50	472.00
PI	39+00	465.00
PI	43+00	472.00