

Answers to “Test Yourself” No. 20

Replace The Compound Curve

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Problem Approach:

1. Recognize that f for the “new” curve will be $f_1 + f_2$.
2. Compute the coordinates for PC_1 and PT_2 .
3. Compute the PI of the “new” curve (bearing/bearing intersection).
4. Compute the tangent distance for the “new” curve.
5. With the “new” f and the “new” T, compute the required information.

Problem Solution:

1. $f_1 + f_2 = f_{\text{new}} = 123^\circ 27' 50''$
2. Therefore, the direction of the tangent from the “new” PI to the PT is $N12^\circ 15' 20'' E$.
3. Compute the coordinates for PT_2
N = 11903.03
E = 21446.37
4. Compute the coordinates for PC_1
N = 11617.32
E = 20793.90
5. With the directions of the “new” curve tangents and the coordinates give in 3. and 4. above, compute the coordinates for the “new” curve PI.
N = 11122.18
E = 21276.75
6. Inverse from the “new” curve PI to PT_2 . (Make sure the line’s bearing is $N12^\circ 15' 20'' E$.) Distance (which is the tangent distance for the “new” curve) is 799.06.
7. With the “new” tangent distance, compute the coordinates for the “new” PC.
N = 11694.26
E = 20718.87
8. “New” $f = 123^\circ 27' 30''$ and “new” T = 799.0631. Therefore:
M = 226.18
E = 477.51
R = 429.68
L = 925.89
LC = 756.87
D = $13^\circ 20' 08''$