Dear students,

Below are the solutions to assignment #3.

1-

86.05 ft; $C_L = \dfrac{99.992-100}{100}86.06 = -0.007$ ft

2-

94.23 ft;

$$C_L = \frac{99.992-100}{100}94.23 = -0.008;\ C_T = 0.00000645(75-68)94.23 = 0.004 \text{ ft}$$

$$C_P = (25-12)\frac{94.23}{0.0025(29{,}000{,}000)} = 0.017 \text{ ft};\ C_S = -\frac{0.023^2(94.23)^3}{24(25)^2} = -0.017 \text{ ft}$$

3-

16.299 m;

$$C_L = \frac{29.991-30}{30}16.302 = -0.005;\ C_T = 0.0000116(25-20)16.302 = 0.0009 \text{ m}$$

$$C_P = (7.9-5.5)\frac{16.302}{0.016(2{,}000{,}000)} = 0.0012 \text{ m};$$

4-

68.95 ft;

$$C_L = \frac{100.008-100}{100}68.96 = 0.006;\ C_T = 0.00000645(54-68)68.96 = -0.006 \text{ ft}$$

$$C_P = (20-12)\frac{68.96}{0.0025(29{,}000{,}000)} = 0.008 \text{ ft}$$

5-

236.87 ft

A-Pin1: $\sqrt{100^2-1^2} = 99.995$ ft ; Pin1-Pin2: $\sqrt{100^2-(1+0.5)^2} = 99.989$ ft

Pin1-B: $\sqrt{36.89^2-0.5^2} = 36.887$ ft ; $AB = 99.995+99.989+36.887 = 236.870$ ft

GOOD LUCK,