

CEST 50 B Plane Surveying Applications

COMPUTING WITH THE U.S. SURVEY FOOT

Introduction:

As enacted, NAD83 units may be in meters or U.S. Survey Feet. The NGS has chosen to publish all CCS83 station data in meters. State Plane coordinates expressed in meters or feet can be converted to the other unit simply by multiplying the northing and easting by the appropriate conversion factor.

Millimeter accuracy can be produced by carrying computations to 10 significant figures.

Conversions:

One U.S. Survey Foot equals 1200/3937 meters, EXACTLY!

One meter equals 39.37 inches

To convert U.S. Survey Feet to meters, multiply the feet by 12 and divide by 39.37.

To convert meters to U.S. Survey Feet, multiply the meters by 39.37 and divide by 12. Once again carry your calculations to 10 significant figures!

Examples:

1 U.S. Survey Foot = 1200/3937 meters, therefor:

100.00 feet = ? meters

$(100.00 \times 12)/39.37 = 30.48006096$ meters

30.48 meters = ? feet

$(30.48 \times 39.37)/12 = 99.99980000$ feet

It is always wise to let the calculator carry out the decimals to at least 8 decimal places and round off at the end of your computations to the significant figures desired.