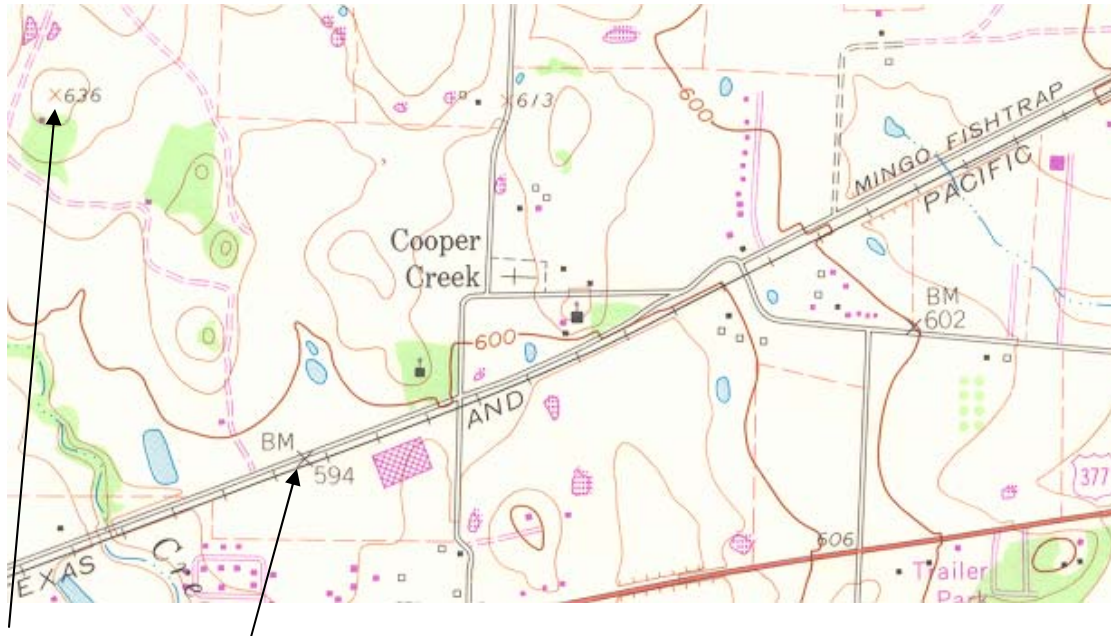


LAB 4. CONTOURS, PROFILES AND SLOPES

1. Calculate the average gradient from point A to point B on the following map. Express the gradient as:



Point A

Point B

a. feet per mile

Map distance A-B = 3 inches; actual distance = $3 \times 24,000$ inches = 72,000 inches = 1.14 miles.

Elevation change = $636 - 594 = 42$ feet.

Gradient = 42 feet per 1.14 miles = $42/1.14 = \underline{36.8}$ feet per mile (“per mile” means per 1 mile).

b. a ratio

36.8 feet per 1 mile = 36.8 feet per 5280 feet = $36.8/36.8 : 5280/36.8 = \underline{1 : 143}$ (rounded to nearest whole number)

c. an angle (note: $\tan X = \text{rise/run}$; therefore, $X = \text{rise/run INV TAN}$) (INV TAN is a calculator function).

Rise /Run = $1/143$, $1/143$ INV TAN = 0.4 degrees (24 minutes).

2. Construct a topographic profile across Williamsville from the 5000' spot height at 123456 to the 5600' contour at 333777. Use a horizontal scale of 1:24,000 and a vertical scale of 1:2,400.

See below:

TOPOGRAPHIC PROFILE ACROSS WILLIAMSVILLE

