Majmaah University **College of Engineering**

Civil & Environmental Eng. Dept. **Photogrammetry (CE 474)** **18/11/2018**

Name:	**Academic Number:**
Level (9): Civil Engineering	**Time allowed: 30 min.**

Quiz #2

A vertical photograph was taken from an elevation of 12137 ft above datum with a 99.25 mm focal length camera. The photographic coordinates for ground points *A* and *B* measure as: A_1 and B_1 on the photo.

Point	x_1	y_1
A_1	+ 80.06 mm	- 4.71 mm
B_1	+ 49.61 mm	- 42.55 mm

The elevations of the points *A* and *B* are known to be 516 ft and 487 ft respectively above datum. Find the horizontal length of ground line *AB*.

(ULO #4/CLO#4 / e-kpi#20 =10 marks)

Given:
Point A_1: (80.06 , -4.71) mm and 516 ft above datum
Point B_1: (49.61 , -42.55) mm and 487 ft above datum
f = 99.25 mm
$H = 12137\ ft$

$$X_g = \frac{x_p(H - h_p)}{f}$$

$$Y_g = \frac{y_p(H - h_p)}{f}$$

$$X_A = \frac{80.06(12137 - 516)}{99.25} = 9374.08\ ft$$

$$Y_A = -\frac{4.71(12137 - 516)}{99.25} = -551.49\ ft$$

$$X_B = \frac{49.61(12137 - 487)}{99.25} = 5823.24\ ft$$

$$Y_B = -\frac{42.55(12137 - 487)}{99.25} = -4994.53\ ft$$

$$D = \sqrt{(X_a - X_b)^2 + (Y_a - Y_b)^2}$$

$$AB = \sqrt{(9374.08 - 5823.24)^2 + (-551.49 + 4994.53)^2} = 5687.624 \text{ ft}$$

Good Luck