Vertical Measures Lab - Relief Displacement

Name: _____

Assignment: <u>**Show all calculations**</u> **(including units) for your answers**. Your answers should be clearly laid out and legible – messy work will received reduced marks or not be marked (i.e. 0). Heights should be presented to 1/10 of a metre, BUT you should maintain all decimal places for calculations. Attach this sheet as your cover page.

1. You examine a photo (15BC321 #11) of a city, whose datum is essentially equal to sea level, and determine the scale to be 1: 8,000. The image of a tower lies 9.9 cm from the PP, and its displacement is 0.57cm. How tall is the tower?

2. You examine the vertical air photo 30BCC123 #61 and determine the datum scale to be 1: 16,000. Datum elevation is 280 metres above MSL. From a contour map you note a hilltop (located at a bearing of 40° from the PP) on the photo has an elevation of 450 m above MSL. The hilltop is measured to be 14.0 cm from the principal point. What is the relief displacement of the hilltop?

3. On this same photo you determine that a second hill has an elevation of 530 m above MSL and it is located 8.5 cm from the PP (at a bearing of 260° from the PP). What is the actual bearing (nearest degree) between these two hills? Assume the photo was flown in a cardinal direction and north is "up" on the photo. You will need to provide a neat diagram.

4. A photo of New York, taken with a camera having a focal length of 6 inches, has a scale of 1:10,050. The Empire State Building appears on the photo and the top is 7.32 cm and the bottom is 5.20 cm from the PP. What is the height of the Empire State Building in metres?

5. Use photos 30BC79047 51 – 53 and calculate the heights of 2 of the buildings marked as A-F. Also, mark (e.g. G and H) 2 buildings 'of your very own' and determine their heights. Show all calculations and note which photo you used for each building.