

**FRST 121 Mapping & Photogrammetry**  
**Lab 3 – Photo Scale and Horizontal Distance**

Name: \_\_\_\_\_

Attach this sheet as your title page. Show all calculations in a neat fashion and include units.

- 1) Once again you have the 1891 map of Nanaimo. What is the scale of the attached air photo of Nanaimo?
- 2) Refer to photo 30BCB91025 No. 84. The altitude is provided on the gauge along the margin (it reads between 27,000 and 28,000 ft). What is the scale of the photo along the sea shore?
- 3) Refer to photo 24107. Determine the distance (nearest metre) between the two circles marked on the photo (be sure to use the 'dead centre of the circles). Assume an elevation of 170m in this portion of the photo.
- 4) A distance of 12.0 cm is measured between two road intersections on a photograph for which the focal length is 305 mm. The distance between the same two features on a 1: 50,000 map is 4.8 cm. Determine the flying height (nearest foot).
- 5) Your aunt owns a woodlot and wished to have air photos taken. The ground elevation varies from 450m – 930m. Assume the focal length on the camera is 305 mm. Determine the altitude (nearest foot) the plane should fly at to attain an average scale of 1: 10,000. Determine the largest and smallest photo scales that will be attained if the plane flies at the fixed altitude determined in the previous question.
- 6) Two features can be seen on both a map and air photo (30BCC1627 No. 22). A distance of 13.6 cm is measured on photo and the corresponding distance of 9.3 cm is measured on a 1: 20,000 map. The flying altitude was 14,400 ft. Determine the elevation (nearest metre) of the ground.