

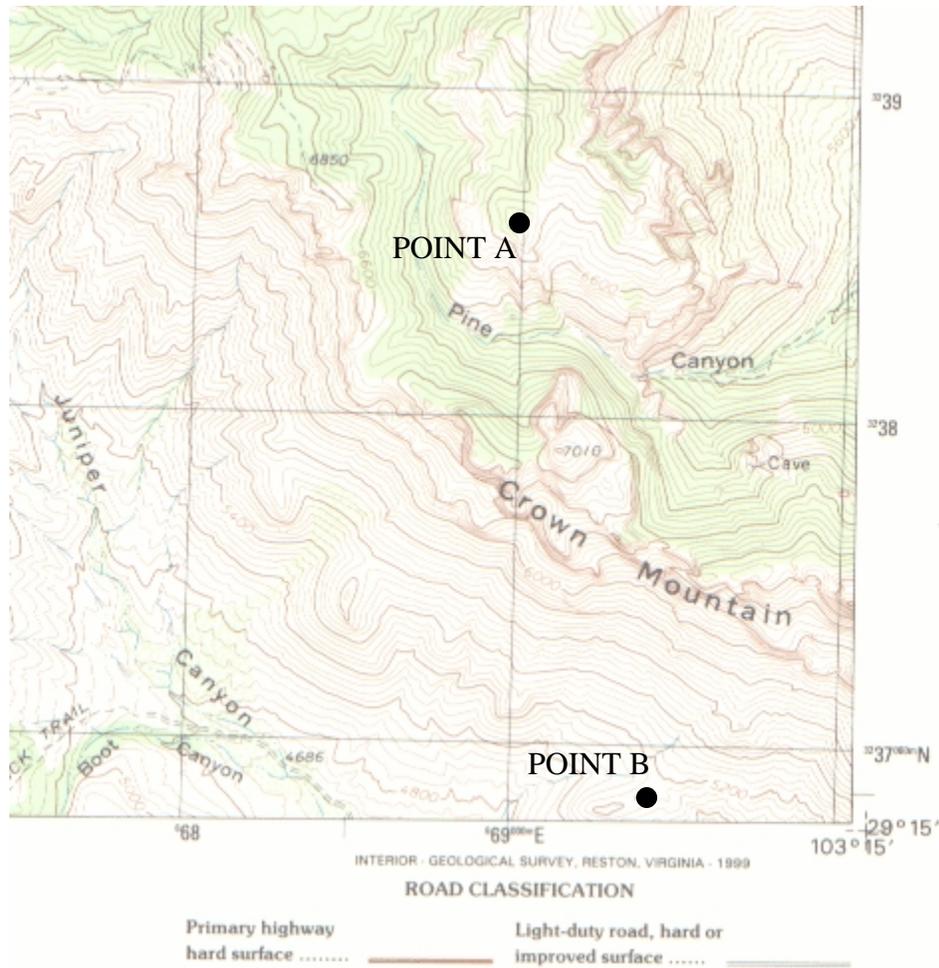
### LAB 3. SCALE, WORKED EXAMPLES

1. How many kilometers would be represented by 5 cm at a scale of 1:20,000?

5 cm represents  $5 \times 20,000 \text{ cm} = 100,000 \text{ cm} = 100,000/100,000 = \underline{1 \text{ km}}$ .

(remember that there are 100,000 cm in 1 km).

2. Using the representative fraction, calculate the straight-line distance in a) miles, b) kilometers, from point A to point B:



a) RF = 1:24,000

Map distance A-B = 4.3 inches

Actual distance =  $103,200 \text{ inches} = 103,200/63360 = 1.63 \text{ miles}$  (rounded to 2 decimal places).

(remember that there are 63360 inches in one mile).

b) RF = 1:24,000

Map distance A-B = 11 cm

Actual distance = 264,000 cm =  $264,000/100,000 = 2.64$  km (rounded to 2 decimal places).

3. At a scale of 1:50,000, a) how much area in square miles would be represented by a rectangle measuring 1 inch by 2 inches? b) how much area in square kilometers would be represented by a rectangle measuring 3 by 5 cm?

a) 1 inch represents  $1 \times 50,000$  inches = 50,000 inches =  $50,000/63360 = 0.789$  miles.

2 inches represents  $2 \times 50,000$  inches = 100,000 inches =  $100,000/63360 = 1.58$  miles.

$0.789 \text{ miles} \times 1.58 \text{ miles} = \underline{1.23 \text{ miles}^2}$

b) 3 cm represents  $3 \times 50,000$  cm = 150,000 cm =  $150,000/100,000 = 1.5$  km.

5 cm represents  $5 \times 50,000$  cm = 250,000 cm =  $250,000/100,000 = 2.5$  km.

$1.5 \text{ km} \times 2.5 \text{ km} = \underline{3.75 \text{ km}^2}$