3.1b Warm-Up

1. Calculate each to three decimal places.

a) tan 43° **b)** tan 72°

2. Calculate each angle. Express your answer to the nearest degree.

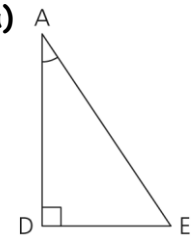
b) tan A = 2.580 **b)** tan $A = \frac{2}{5}$

3. Calculate x for each equation. Express your answer to one decimal place.

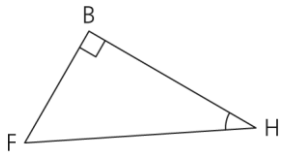
a) $\tan 43° = \frac{x}{12}$ **b)** $\tan 43° = \frac{12}{x}$

4. Which side is adjacent to the marked angle in each triangle?

a)

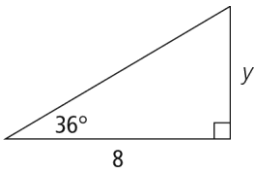


b)

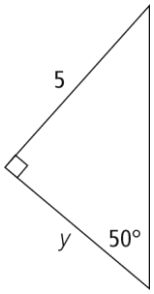


5. Find the missing length, y, to one decimal place.

a)



b)



FPC 10 Name: _____

3.1b Indirect Measurement

Data Collection	/3
Diagrams	/2
Height Calculations	/5
Total	**/10**

Use a clinometer to measure the height of the gym/roof

Procedure:

1. Measure the length of 5 "strides" using a measuring tape. Find the length of your "average stride". These should be regular walking steps, as these will be more natural to you

Table 1. Stride Length

5 strides	
My average stride	
Distance from ground to my eye	

2. Standing at the base, start walking away from the gym wall. Count the number of strides and enter that number into the table below.

3. Use the clinometer to measure the angle made between the ground and the top of the object. Record this angle in the table below.

Table 2. Data Collection

	Gym/Roof	Other
# of strides		
Clinometer Reading		

Calculating the Height of the object

Use the following procedure to calculate the height of each object.

1. Draw a diagram. This diagram will be part of the work needed to find the heights of the objects

2. Find the approximate distance to the object using your average stride (from table 1) and the number of strides (from table 2). Label your diagram with this distance.

3. Calculate the angle of elevation. Note that the clinometer measures the angle made with the vertical axis and the angle of elevation is the angle made with the horizontal axis. Label your diagram with the angle of elevation

4. Calculate the height of the object. Show all work or no marks will be given. Don't forget to include the height from the ground to your eye.