

Name _____ Date _____ Pd _____

LAWS OF SINES AND COSINES – WHICH ONE TO USE?

Find all lengths and angles to 2 decimal places.

1. $\angle A = \underline{\hspace{1cm}}$ $a = 13$
 $\angle B = 83^\circ$ $b = \underline{\hspace{1cm}}$
 $\angle C = \underline{\hspace{1cm}}$ $c = 15$

4. $\angle A = \underline{\hspace{1cm}}$ $a = 13$
 $\angle B = \underline{\hspace{1cm}}$ $b = 30$
 $\angle C = \underline{\hspace{1cm}}$ $c = 40$

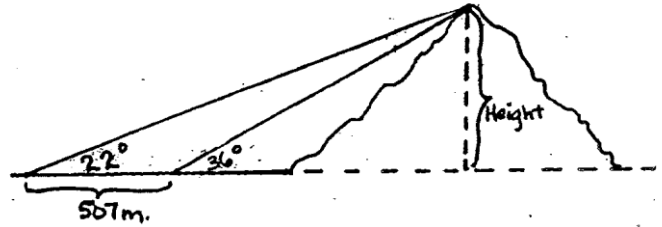
2. $\angle A = 38^\circ$ $a = \underline{\hspace{1cm}}$
 $\angle B = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$
 $\angle C = 102^\circ$ $c = 35$

5. $\angle A = \underline{\hspace{1cm}}$ $a = 2.6$
 $\angle B = 60^\circ$ $b = \underline{\hspace{1cm}}$
 $\angle C = 100^\circ$ $c = \underline{\hspace{1cm}}$

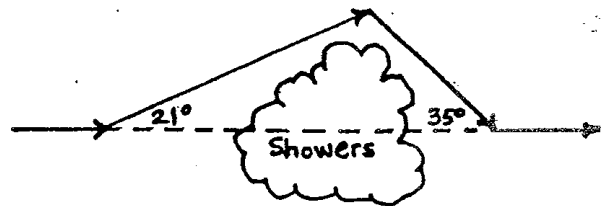
3. $\angle A = 110^\circ$ $a = 18$
 $\angle B = \underline{\hspace{1cm}}$ $b = 12$
 $\angle C = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$

6. $\angle A = 140^\circ$ $a = \underline{\hspace{1cm}}$
 $\angle B = \underline{\hspace{1cm}}$ $b = 30$
 $\angle C = \underline{\hspace{1cm}}$ $c = 15$

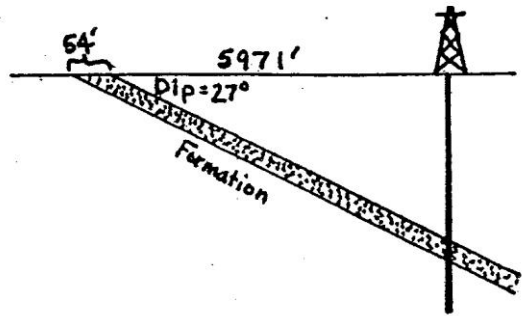
7. A surveying crew is given the job of measuring the height of a mountain. From a point on level ground, they measure an angle of elevation to the top of 22° . They move 507 meters closer and find the angle is now 36° . How high is the mountain? (You may need to calculate some other numbers first.)



8. Suppose that you are a pilot of a commercial airliner. You find it necessary to detour around a group of thundershowers. You turn at an angle of 21° to your original path, fly for a while, turn, and intercept your original path at an angle of 35° , 70 km from where you left it. How much further did you have to go because of the detour?



9. A geologist prospecting for oil finds a likely rock formation outcropping from the ground. The dip angle is 27° .
- If the oil well is located 5971 feet from the nearest edge of the outcropping, how deep will the driller have to go to reach the formation?
 - If the formation is 54 feet wide where it outcrops, how much further must the driller go to get completely through it?
 - If the geologist's measurements were off by 1° and the dip angle was really 28° , how much deeper would the driller have to go to reach the top of the formation?



10. A field has the shape of a quadrilateral that is not a rectangle. Three sides measure 50, 60, and 70m, and two angles measure 127° and 132° .
- Find the length of the fourth side.
 - Find the measures of the other two angles.

