**Echolocation: Mystery Topography** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In the box below, draw a diagram of your bat using echolocation to determine the height of a point on the ground.

|  |
| --- |
|  |

1. Write down the following information (don’t forget to include units):
2. Your bat # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The horizontal distance between your bat and bat #1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The height of your bat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. The echo time for your bat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. The speed of sound in air \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Calculate the distance between your bat and the ground below:
8. Use the general formula *distance = velocity \* time*

(Hint: You must change the formula to fit the situation)

1. Substitute the actual values for the variables in the formula

*distance =* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Calculate the answer

*distance = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. Calculate the elevation of the ground below your bat:
2. *height of the ground = height of the bat – distance between the bat and the ground*
3. Substitute the actual values for the variables in the formula

*distance =* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Calculate the answer

*distance = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*