Answer each of the following questions. You must show your work in order to receive partial credit.

Solve.

1) From a boat on the lake, the angle of elevation to the top of a cliff is 32°26'. If the base of the cliff is 1990 feet from the boat, how high is the cliff (to the nearest foot)?

\[
\tan 32.43^\circ = \frac{\chi}{1990}
\]
\[
\chi = 1990 \tan 32.43^\circ 
\approx 1264 \text{ ft}
\]

2) Your math class is going to test new digital clinometers by measuring the angle of elevation of a kite you will fly. The kite flies to an angle of 55.1° on 350 feet of string. Assuming the string is taut, how high is the kite to the nearest foot?

\[
\sin 55.1^\circ = \frac{\chi}{350}
\]
\[
\chi = 350 \sin 55.1^\circ 
\approx 287 \text{ ft}
\]

3) You are hiking and are trying to determine how far away the nearest cabin is which happens to be due north from your current position. A partner walks 240 yards due west from your position and takes a bearing on the cabin of N 28.8° E. How far away is the cabin to the nearest yard?

\[
\cos 61.2^\circ = \frac{240}{\chi}
\]
\[
\chi \cos 61.2^\circ = 240
\]
\[
\chi = \frac{240}{\cos 61.2^\circ} 
\approx 498 \text{ yds}
\]