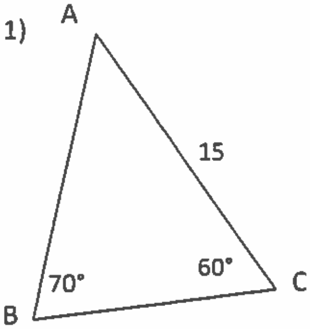
College Review Math
Review Sections 9-3 & 9-4

Name HKEY

Round ***all*** answers to nearest tenth.
Use the Law of Sines to solve the following triangles. $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

1)



∠A = 50°

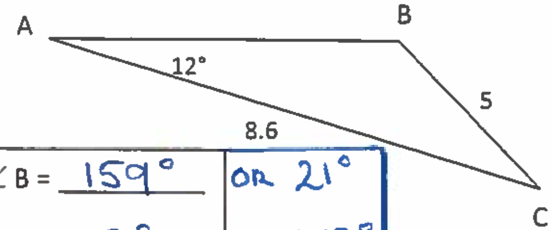
a = 12.2

c = 13.8

$\frac{\sin 70}{15} = \frac{\sin 60}{c}$ $\frac{\sin 70}{15} = \frac{\sin 50}{a}$

$\frac{15 \sin 60}{\sin 70} = c$ $\frac{15 \sin 50}{\sin 70} = a$

2)



∠B = 159°	OR 21°
∠C = 9°	OR 147°
c = 3.8	OR 13.1

$\frac{\sin 12}{5} = \frac{\sin B}{8.6}$ $\frac{\sin 12}{5} \approx \frac{\sin 9}{c}$

$\frac{8.6 \sin 12}{5} = \sin B$ $\frac{5 \sin 9}{\sin 12} = c$

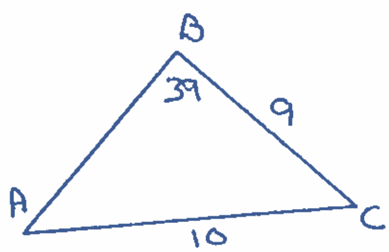
$B = 21°$ OR $159°$

3) Draw and solve ΔABC if a = 9, b = 10 and ∠B = 39°

∠A = 34.5°

∠C = 106.5°

c = 15.2

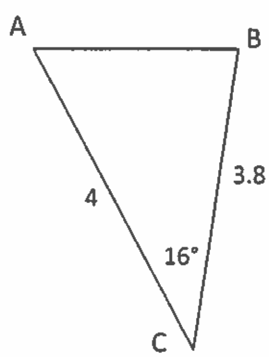


$\frac{\sin 39}{10} = \frac{\sin A}{9}$ $\frac{\sin 39}{10} \approx \frac{\sin 106}{c}$

$\frac{9 \sin 39}{10} = \sin A$ $\frac{10 \sin 106.5}{\sin 39} =$

Use the Law of Cosines to find the missing measurement. $c^2 = a^2 + b^2 - 2ab\cos C$

4)

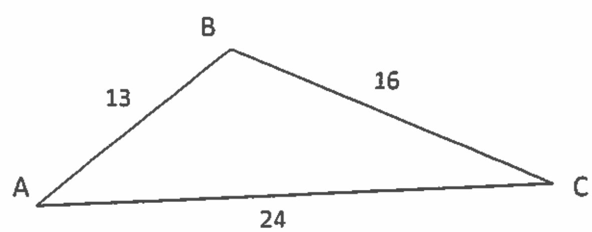


c = 1.1

$c^2 = 4^2 + 3.8^2 - 2(4)(3.8)\cos 16$

$c^2 = 30.44 - 30.4\cos 16$

5)



∠B = 111.3°

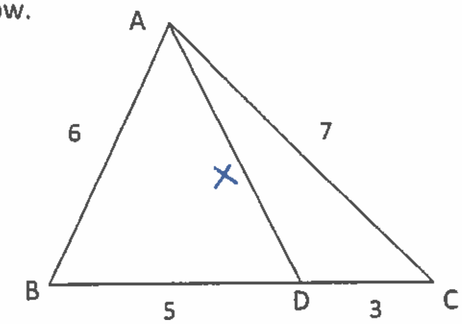
$24^2 = 13^2 + 16^2 - 2(13)(16)\cos B$

$576 = 425 - 416\cos B$

$151 = -416\cos B$

$151/_{-416} = \cos B$

6) Find the length of AD in the diagram below.



$49 = 36 + 64 - 2(6)(8)\cos B$

$49 = 100 - 96\cos B$

$-51 = -96\cos B$

$51/96 = \cos B$

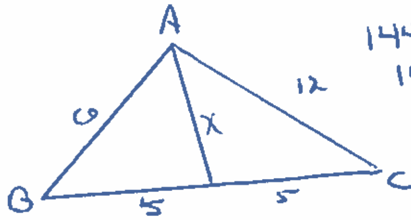
$\angle B = 57.9°$

$x^2 \approx 36 + 25 - 2(6)(5)\cos 57.9$

$x^2 \approx 61 - 60\cos 57.9$

$AD \approx 5.4$

7) Draw ΔABC, then find the length of the median from A, if a = 10, b = 12 and c = 6



$144 = 36 + 100 - 2(6)(10)\cos B$

$144 = 136 - 120\cos B$

$8 = -120\cos B$

$8/-120 = \cos B$

$\angle B = 93.8°$

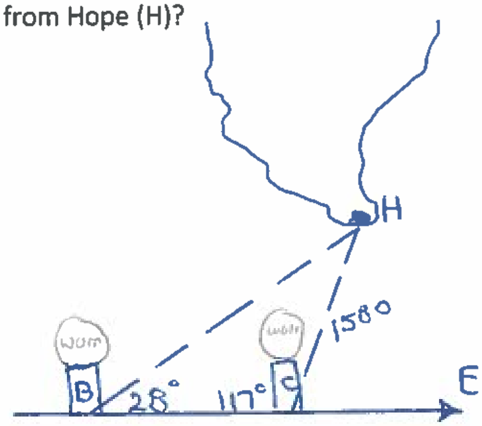
$x^2 \approx 36 + 25 - 2(6)(5)\cos 93.8$

$x^2 \approx 61 - 60\cos 93.8$

MEDIAN ≈ 8.1

Use either the Law of Sines or Cosines to solve the word problems. Make sure to make a drawing for each.

8) Buoys (B) and (C) lie south of the coast of the most southern tip of South America. They lie in a direct eastern path with buoy C being the most eastern. Bouy (C) is known to be exactly 1580 yards from the coast city of Hope (H). If a ship passes buoy B headed directly east with $\angle CBH = 28°$ and $\angle BCH = 117°$ draw ΔBHC and determine how far bouy (B) is from Hope (H)?

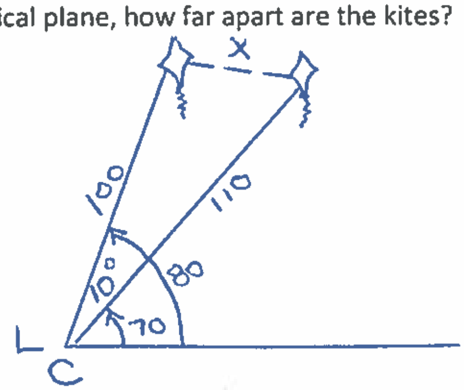


$$\frac{\sin 28}{1580} = \frac{\sin 117}{c}$$

$$\frac{1580 \sin 117}{\sin 28} = c$$

$c = 2998.7$ YDS

9) Lacy and Cassie are flying kites from the same location. Lacy has let out 100' of string, and her kite flys at an angle of inclination of 80°. Cassie's kite has an angle of inclination of 70° and has 110' of string released. If both kites lie on the same vertical plane, how far apart are the kites?



$x^2 = 100^2 + 110^2 - 2(100)(110)\cos 10$

$x^2 = 434.229\ldots$

$x = 20.8$ feet