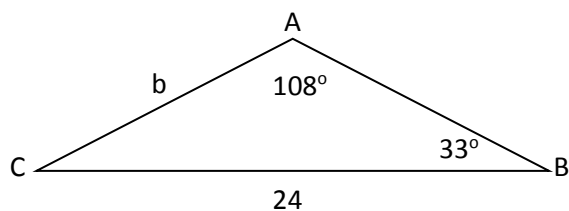


6.6 Law of Sines Day 1 Homework
Geometry 3313

Name: Key

Find the missing side length using the Law of Sines. Round to the nearest tenth.

1. Find b



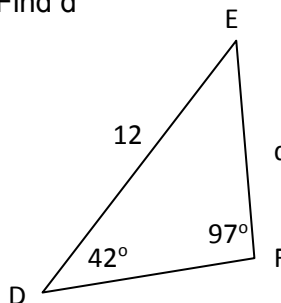
$$\frac{\sin 33}{b} = \frac{\sin 108}{24}$$

$$24 \sin 33 = b \sin 108$$

$$\frac{24 \sin 33}{\sin 108} = b$$

$$\boxed{13.7 = b}$$

2. Find d



$$\frac{\sin 97}{12} = \frac{\sin 42}{d}$$

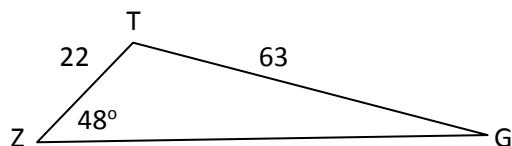
$$d \sin 97 = 12 \sin 42$$

$$d = \frac{12 \sin 42}{\sin 97}$$

$$\boxed{d = 8.1}$$

Find the missing angle using the Law of Sines. Round to the nearest tenth

3. Find $m\angle G$



$$\frac{\sin G}{22} = \frac{\sin 48}{63}$$

$$63 \sin G = 22 \sin 48$$

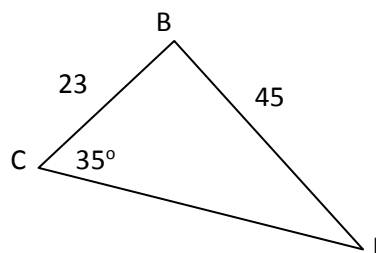
$$\sin G = \frac{22 \sin 48}{63}$$

$$\sin G = .2595$$

$$G = \sin^{-1}(.2595)$$

$$\boxed{G = 15.0^\circ}$$

4. Find $m\angle F$



$$\frac{\sin F}{23} = \frac{\sin 35}{45}$$

$$45 \sin F = 23 \sin 35$$

$$\sin F = \frac{23 \sin 35}{45}$$

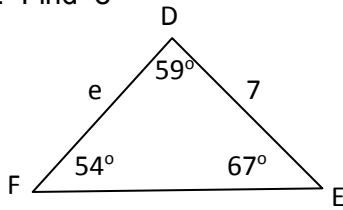
$$\sin F = .2932$$

$$F = \sin^{-1}(.2932)$$

$$\boxed{F = 17.0^\circ}$$

Find the missing side.

5. Find e



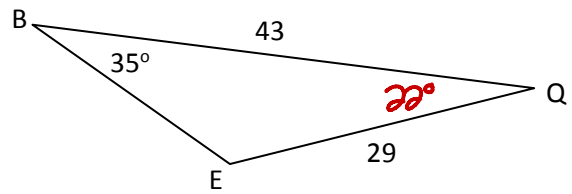
$$\frac{\sin 67}{e} = \frac{\sin 54}{7}$$

$$7 \sin 67 = e \sin 54$$

$$e = \frac{7 \sin 67}{\sin 54}$$

$$e = 8.0$$

6. Find $m\angle E$



$$\frac{\sin 22}{9} = \frac{\sin 23}{43}$$

$$43 \sin 22 = 9 \sin 23$$

$$9 = \frac{43 \sin 22}{\sin 23}$$

$$9 = 19.2$$

7. In $\triangle DEF$, $d = 24$ cm, $m\angle D = 37^\circ$ and $m\angle E = 49^\circ$. Find e to the nearest tenth.
(Hint: Draw a picture and find the indicated angle or side)

$$\frac{\sin 37}{24} = \frac{\sin 49}{e}$$

$$e \sin 37 = 24 \sin 49$$

$$e = \frac{24 \sin 49}{\sin 37} = 30.1$$

8. The town surveyor has to stake the lot markers for a new public beside an existing building lot. According to the sketch, how much chain-link fence will be needed to enclose the entire park?

$$\frac{\sin 68}{46} = \frac{\sin 47}{a}$$

$$a \sin 68 = 46 \sin 47$$

$$a = \frac{46 \sin 47}{\sin 68}$$

$$a = 36.3$$

$$\frac{\sin 68}{46} = \frac{\sin 65}{b}$$

$$b \sin 68 = 46 \sin 65$$

$$b = \frac{46 \sin 65}{\sin 68}$$

$$b = 45.0$$

$$46 + 36.3 + 45.0 = 127.3 \text{ meters}$$