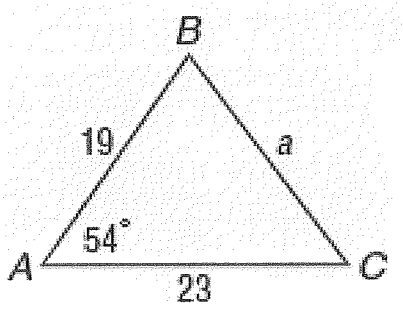
Name: _____ Hour: _____

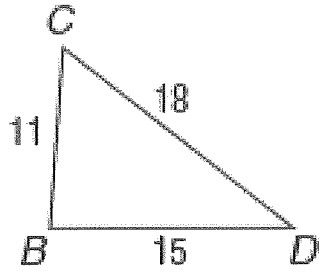
Law of Sines and Cosines Extra Practice

Directions: Solve for the variable. Round to the nearest tenth if needed.

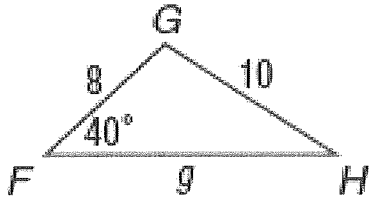
1. Find a.



2. Find the measure of <C.

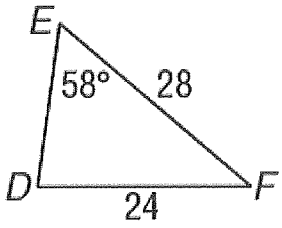


3. Solve for <H and g.

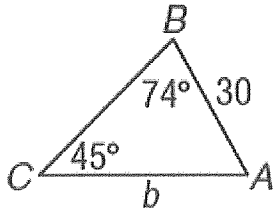


Name: _____ Hour: _____

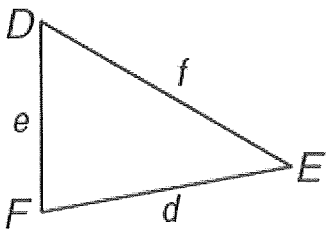
4. Find <D.



5. Find b.



6. Solve ΔDEF if, d=7, e=8, f=5

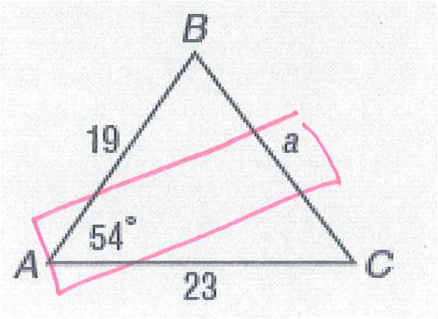


Name: Key Hour: _____

Law of Sines and Cosines Extra Practice

Directions: Solve for the variable. Round to the nearest tenth if needed.

1. Find a.



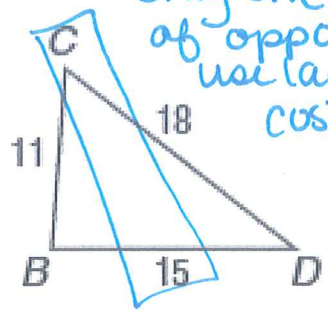
one pair of opposites. Use law of cosines!

$a^2 = 23^2 + 19^2 - 2 \cdot 23 \cdot 19 \cos(54)$

$a^2 = 376.276$

$a = 19.4$

2. Find the measure of <C.



only one pair of opposites use law of cosines.

$15^2 = 11^2 + 18^2 - 2 \cdot 11 \cdot 18 \cos C$

$225 = 445 - 396 \cos C$

$-445 \quad -445$

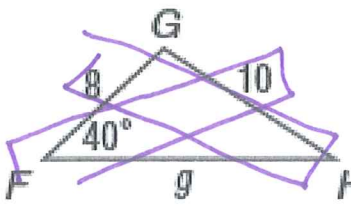
$\frac{-220}{-396} = \frac{-396 \cos C}{-396}$

$\cos C = \frac{-220}{-396}$

$\angle C = 56.3°$

$\angle C = \cos^{-1}\left(\frac{-220}{-396}\right)$

3. Solve for <H and g.



Find <H

$\frac{\sin H}{8} = \frac{\sin(40)}{11}$

$\sin H = \frac{8 \cdot \sin(40)}{11}$

$\angle H = \sin^{-1}\left(\frac{8 \cdot \sin(40)}{11}\right)$

$\angle H = 27.9°$

Find <G Δ sum = 112.1°

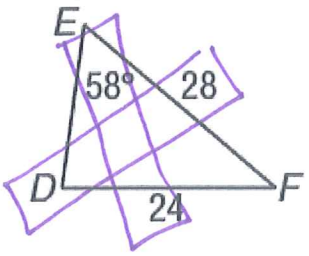
$\frac{\sin(40)}{10} = \frac{\sin(112.1)}{g}$

$\frac{g \cdot \sin(40)}{\sin(40)} = \frac{10 \cdot \sin(112.1)}{\sin(40)}$

$g = 14.4$

Name: _____ Hour: _____

4. Find <D.



TWO pairs of opposites = use law of ~~Cosines~~ Sines ☺

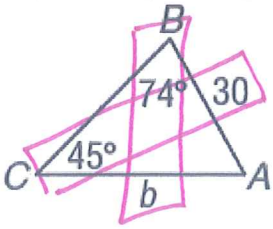
$$\frac{\sin D}{28} = \frac{\sin(58)}{24}$$

$$\sin D = \frac{28 \cdot \sin(58)}{24}$$

$$\angle D = \sin^{-1}\left(\frac{28 \cdot \sin(58)}{24}\right)$$

$\angle D = 81.6°$

5. Find b.



Law of Sines:

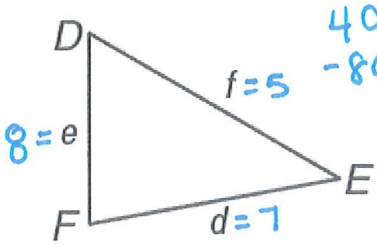
$$\frac{\sin(45)}{30} = \frac{\sin(74)}{b}$$

$$b\sin(45) = 30\sin(74)$$

$$b = \frac{30 \cdot \sin(74)}{\sin(45)}$$

$b = 40.8$

6. Solve ΔDEF if, d=7, e=8, f=5



Find <D

$7^2 = 5^2 + 8^2 - 2 \cdot 5 \cdot 8 \cdot \cos D$

$49 = 89 - 80\cos D$

$-89 \quad -89$

$\frac{-40}{-80} = \frac{-80\cos D}{-80}$

$\cos D = \frac{-40}{-80}$

$\angle D = \cos^{-1}\left(\frac{-40}{-80}\right)$

$\angle D = 60°$

Find <E

$$\frac{\sin E}{8} = \frac{\sin(60)}{7}$$

$$\sin E = \frac{8 \cdot \sin(60)}{7}$$

$$\angle E = \sin^{-1}\left(\frac{8 \cdot \sin(60)}{7}\right)$$

$\angle E = 81.8°$

$\angle F = 38.2°$ by Δ sum