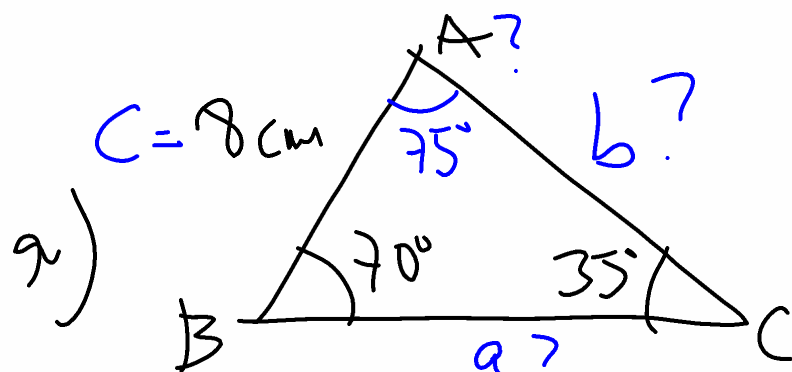


Homework
page 289 Ex 8

FRI 17 MAY 2019

Solve the triangle



Solution

$$A + B + C = 180$$

$$A + 70 + 35 = 180$$

$$A + 105 = 180$$

$$\boxed{A = 180 - 105 = 75^\circ}$$

Sine law

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

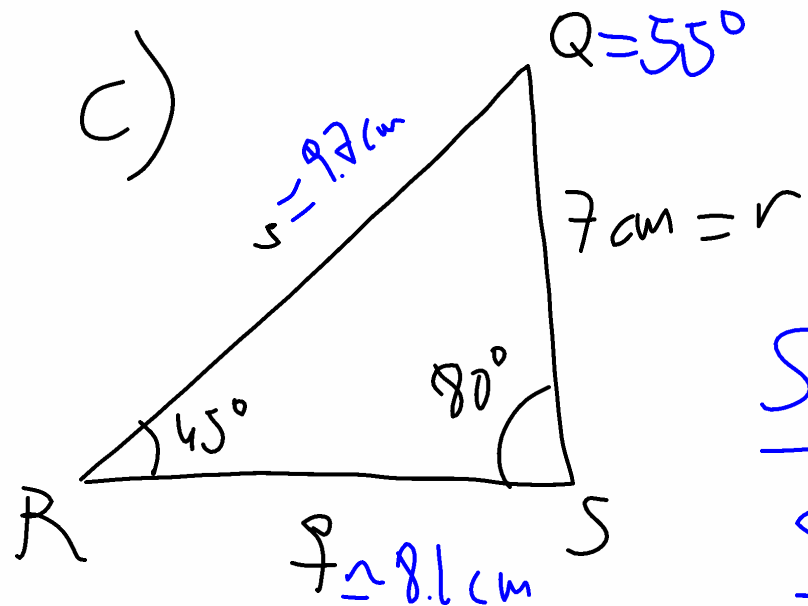
$$\Rightarrow \frac{a}{\sin 75} = \frac{8}{\sin 35}$$

As it is an Acute
triangle

we can solve a & b by sine law

Analogously, $\boxed{b = 8 \cdot \frac{\sin 70}{\sin 35} \approx 13.1 \text{ cm}}$

$$\boxed{a = 8 \cdot \frac{\sin 25}{\sin 35} \approx 13.5 \text{ cm}}$$



Solve this triangle
 $Q?$ $s?$ $q?$

Sol: $Q + R + S = 180 \rightarrow Q + 45 + 80 = 180$
 $\boxed{Q = 180 - 125 = 55^\circ}$

Sine law

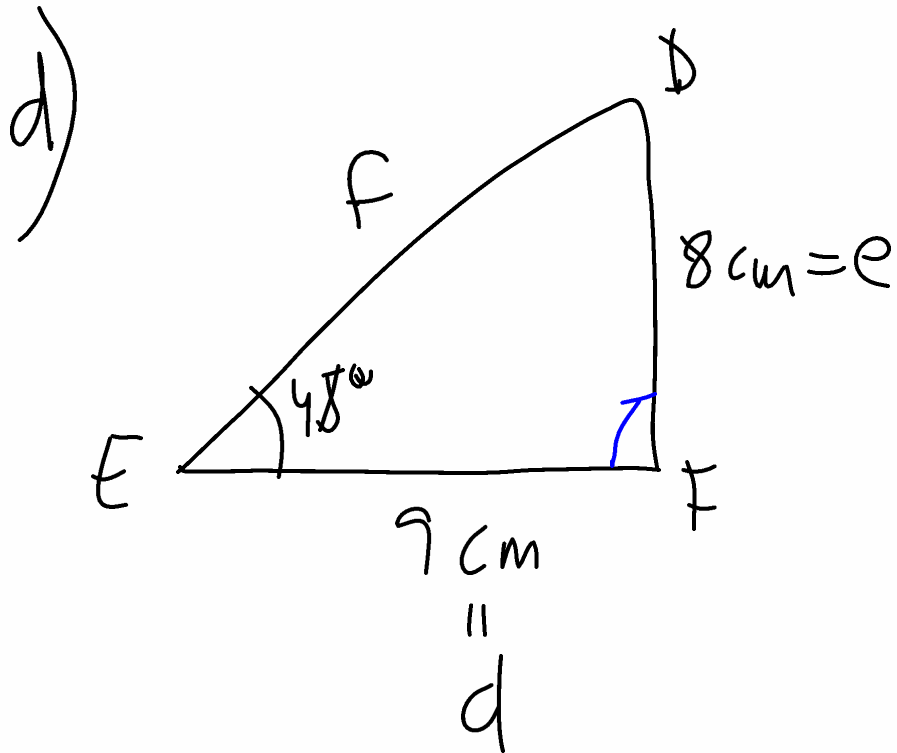
$$\frac{s}{\sin S} = \frac{q}{\sin Q} = \frac{r}{\sin R}$$

for s:

$$\frac{s}{\sin S} = \frac{r}{\sin R} \Rightarrow \frac{s}{\sin 80} = \frac{7}{\sin 45} \Rightarrow \boxed{s = 7 \cdot \frac{\sin 80}{\sin 45} \approx 9.7 \text{ cm}}$$

for q:

$$\frac{q}{\sin Q} = \frac{r}{\sin R} \Rightarrow \frac{q}{\sin 55} = \frac{7}{\sin 45} \Rightarrow \boxed{q = 7 \cdot \frac{\sin 55}{\sin 45} \approx 8.1 \text{ cm}}$$



Solve this triangle
D? F? f?

Sol: Despite knowing 2 sides & 1 angle
it's NOT a SAS (cosine law) problem
as we do not know angle F!

X = Sine law:

$$\frac{\sin D}{d} = \frac{\sin F}{f} = \frac{\sin E}{e}$$

$$f \approx 75.3$$

$$\frac{\sin D}{9} = \frac{\sin 48}{8}$$

$$\frac{x}{9} = \frac{\sin 48}{8} \rightarrow x = \frac{9 \cdot \sin 48}{8}$$

$$0.8360 = \sin D$$

(calculator)

$$D \approx \sin^{-1}(0.8360) \approx 56.7^\circ$$

