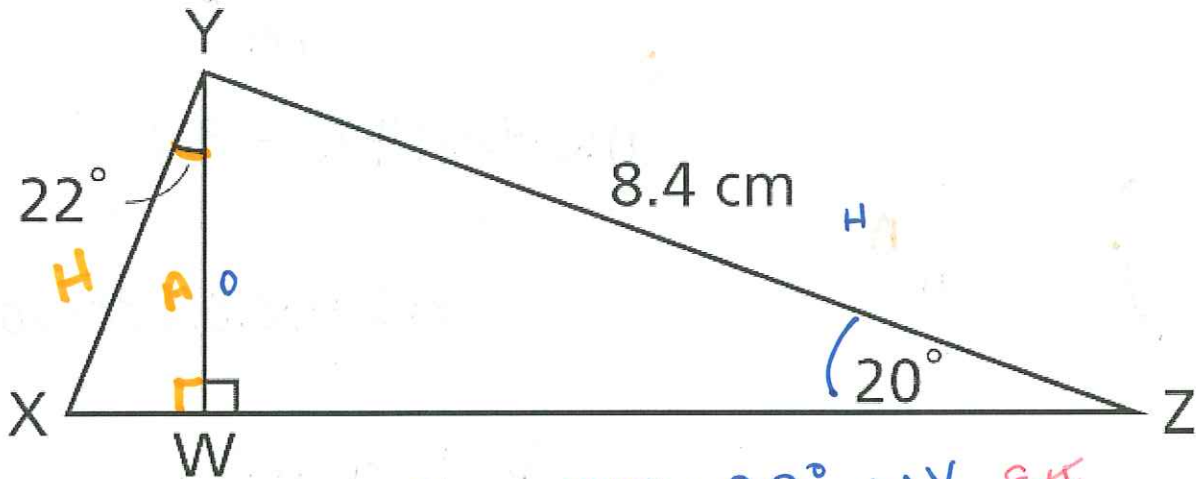


2.7 Solving Problems Involving More Than One Right Triangle

Example: Find the length of XY to the nearest tenth of a centimetre.
Recall: Do not round any numbers until the very last step.



① Find WY first: $8.4 \sin 20^\circ = \frac{WY \cdot 8.4}{8.4}$

$WY = 2.872969204 \text{ cm}$
(don't round yet!)

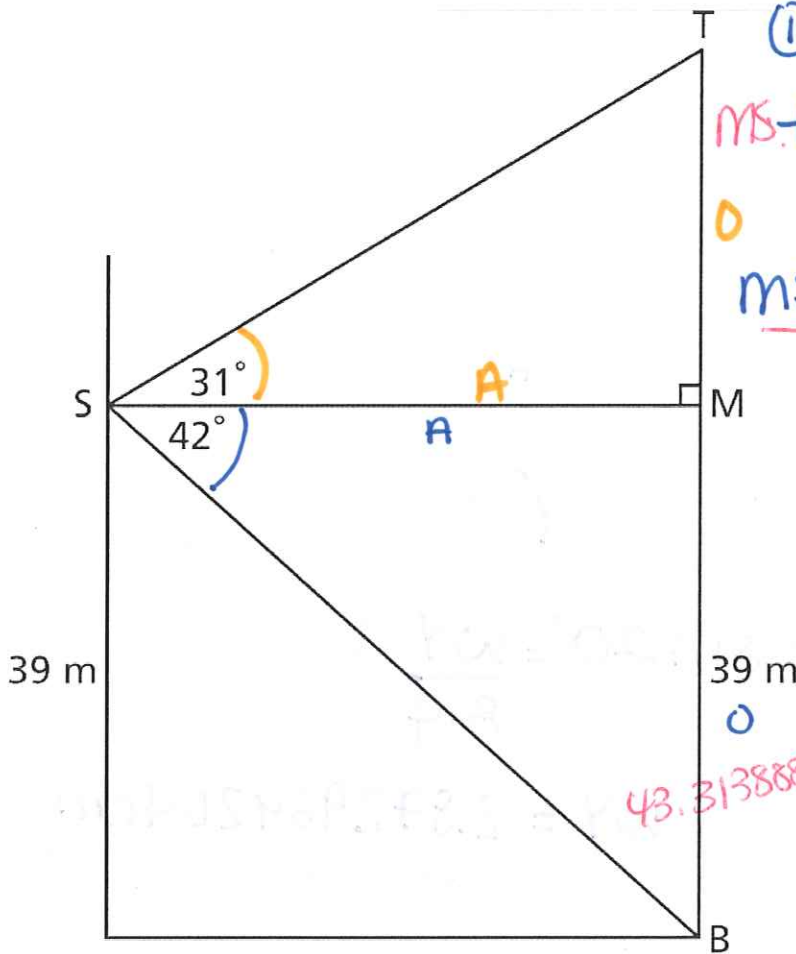
② Find XY:

$XY \cdot \cos 22^\circ = \frac{2.872969204 \cdot XY}{XY}$

$\frac{XY \cos 22^\circ}{\cos 22^\circ} = \frac{2.872969204}{\cos 22^\circ}$

$XY = 3.1 \text{ cm}$

Example: A surveyor stands at a window on the 9th floor of an office tower. He uses a clinometer to measure the angles of elevation and depression of the top and the base of a taller building. The surveyor sketches this plan of his measurements. Determine the height of the taller building to the nearest tenth of a metre.



① Find MS first:

$$MS \cdot \tan 42^\circ = \frac{39 \cdot MS}{MS}$$

$$MS \cdot \tan 42^\circ = \frac{39}{\tan 42^\circ}$$

$$MS = 43.31388808 \text{ m}$$

② Find MT :

$$\tan 31^\circ = \frac{MT}{43.31388808}$$

$$MT = 26.0256096 \text{ m}$$

③ Find BT by adding
 MT and 39 m
 $= 65.0 \text{ m}$