Student 3: Low Merit

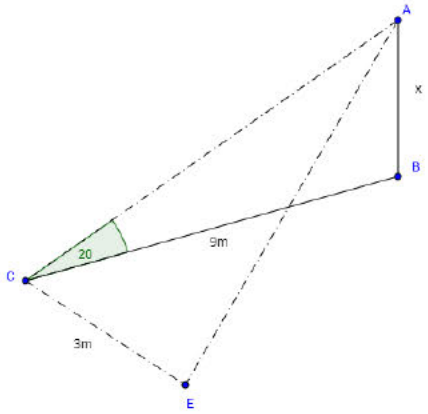
NZQA Intended for teacher use only

Calculate Sail dimensions

$$\tan 20 = \frac{x}{9}$$

x = tan20 = 9tan 20 = 3.28

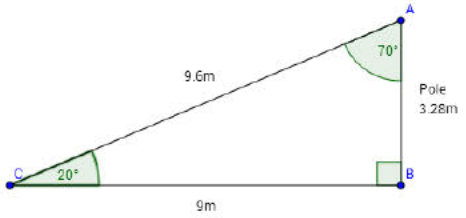
x = 3.28 m (pole height)



1

$$AC = \sqrt{(9^2 + 3.28^2)}$$

AC = 9.58 m (Sail side)



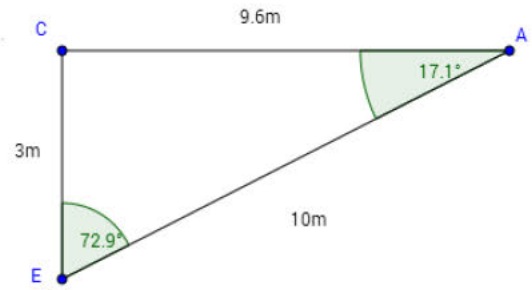
2

$$\tan x = \frac{9.78}{3} = \angle CEA$$

$$x = (\frac{9.78}{3}) \tan^{-1}$$

$$x = 72.9°$$

$\angle CEA = 72.9°$ (Sail angle)



3

Length of pole

3.28 + 2.5 = 5.78 m

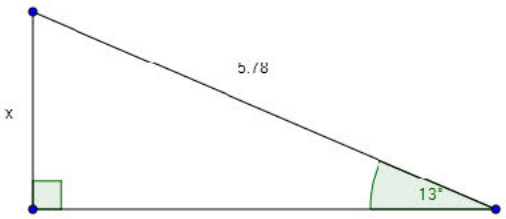
$$\frac{x}{5.78} = \sin 13$$

x = 5.78sin13 = 1.3 m

$y = \sqrt{(5.78^2 - 1.3^2)}$ = 5.63 m

$\sqrt{(5.63^2 - 2.4^2)}$ = 5.1 m (1dp

Smallest van is 5.1 m long



4