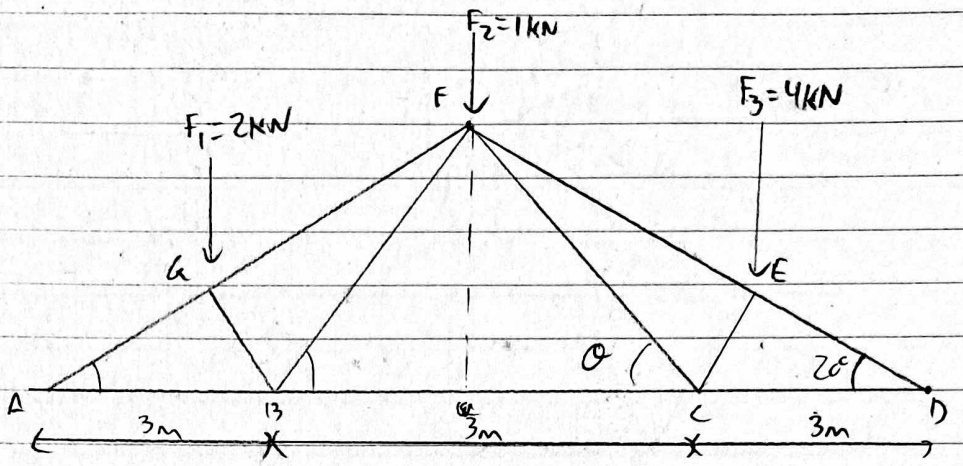
Solutions: 21-5-6.4-MH-OB



$\tan = \frac{o}{a} \rightarrow h = \tan(20)(3 \times 1.5) = 1.638\,m$

$\theta = \tan^{-1}\left(\frac{1.638\,m}{1.5\,m}\right) \Rightarrow \theta = 47.51°$

Reactions

$\cos 20 = \frac{DE}{3} \rightarrow DE = 3\cos 20 \rightarrow DE = 2.819\,m$

$DE_x = 2.819\cos 20 \rightarrow DE = 2.648\,m$

$\Sigma M_A = 0 = -D_y(9m) + (2kN)(2.648m) - (1kN)(4.5kN) - (4kN)(9m - 2.648m)$

$D_y = \frac{(2kN)(2.65m) + (1kN)(4.5kN) + (4kN)(9m - 2.65m)}{9m}$

$D_y = 3.91\,kN$

find BC