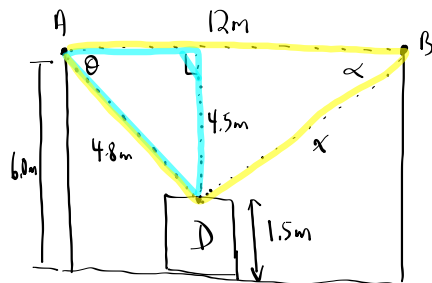


§3-4 Solving Problems Using Acute Triangles

Example 1 (p140)

What is the angle of depression for each camera?



To find θ :

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin \theta = \frac{4.5\text{m}}{4.8\text{m}}$$

$$\theta = \sin^{-1}\left(\frac{4.5}{4.8}\right)$$

$$\theta \doteq 70^\circ$$

69.635865...

We need to find x before we can find α :

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$x^2 = (4.8)^2 + 12^2 - (2)(4.8)(12) \cos 70^\circ$$

$$x^2 = 127$$

$$x \doteq 11.3\text{m}$$

(11.267302...)

Now use the law of sines to find α :

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

$$\frac{\sin 70^\circ}{11.3} = \frac{\sin \alpha}{4.8}$$

$$\sin \alpha = \frac{(4.8)(\sin 70^\circ)}{11.3}$$

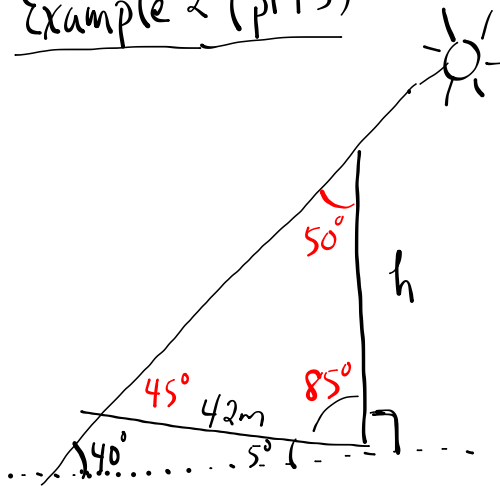
$$\sin \alpha = 0.399385...$$

$$\alpha = \sin^{-1}(0.399385...)$$

$$\alpha \doteq 24^\circ$$

Camera A should have an angle of depression of 70° and camera B should have an angle of depression of 24° .

Example 2 (p143)



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

$$\frac{h}{\sin 45^\circ} = \frac{42}{\sin 50^\circ}$$

$$h = \frac{42(\sin 45^\circ)}{\sin 50^\circ}$$

$$h \approx 39\text{m}$$

To Do

① Look over Example 3 (p145)

② p147 | 3 - 9 11 - 14

③ Chapter Self Test (p152)

④ Chapter Review (p153)

⑤ p154 | all

Review for Quiz
on Friday.