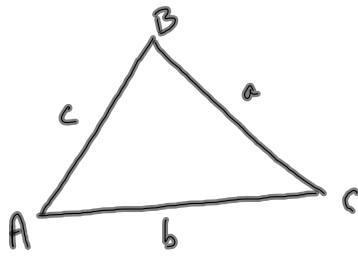


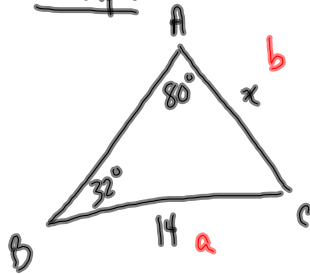
Law of Sines



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

The ratio of the sine of an angle and the side opposite that angle is a constant in a given triangle.

Example



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

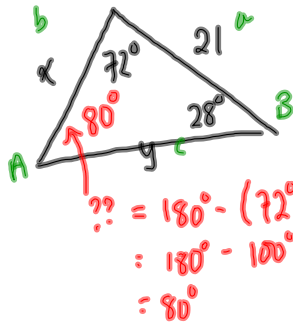
$$\frac{14}{\sin 80^\circ} = \frac{x}{\sin 32^\circ}$$

$$14 \sin 32^\circ = x \sin 80^\circ$$

$$x = \frac{14 \sin 32^\circ}{\sin 80^\circ}$$

$$x = 7.5$$

Example



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

$$\frac{21}{\sin 80^\circ} = \frac{x}{\sin 28^\circ}$$

$$x \sin 80^\circ = 21 \sin 28^\circ$$

$$x = \frac{21 \sin 28^\circ}{\sin 80^\circ}$$

$$x = 10.0$$

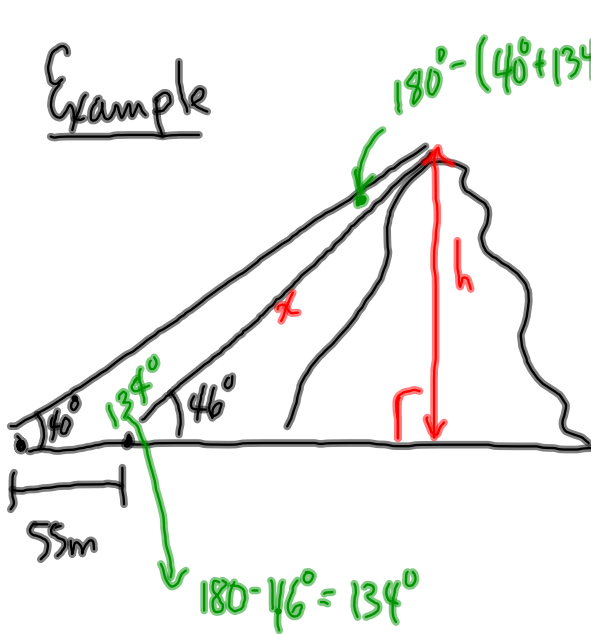
To find y: $\frac{a}{\sin A} = \frac{c}{\sin C}$

$$\frac{21}{\sin 80^\circ} = \frac{y}{\sin 72^\circ}$$

$$21 \sin 72^\circ = y \sin 80^\circ$$

$$y = \frac{21 \sin 72^\circ}{\sin 80^\circ}$$

$$y = 22.4$$

ExampleUse Law of Sines to find x :

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

$$\frac{55\text{m}}{\sin 6^\circ} = \frac{x}{\sin 46^\circ}$$

$$x \sin 6^\circ = (55\text{m})(\sin 46^\circ)$$

$$x = \frac{(55\text{m})(\sin 46^\circ)}{\sin 6^\circ}$$

$$\boxed{x = 338.2\text{m}}$$

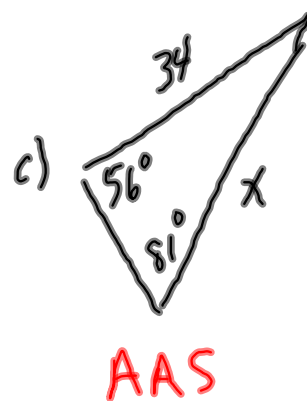
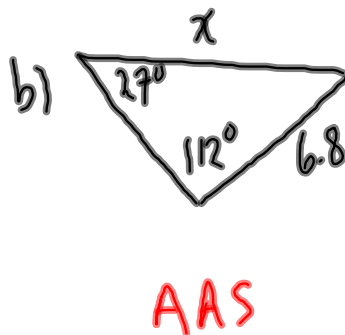
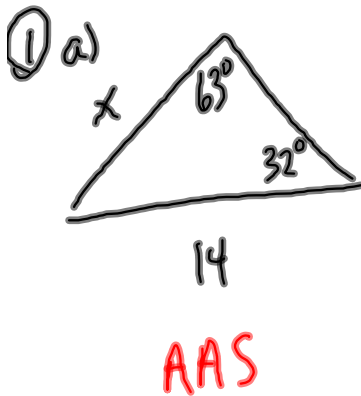
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 46^\circ = \frac{h}{338.2\text{m}}$$

$$h = (338.2\text{m})(\sin 46^\circ)$$

$$\boxed{h = 243.3\text{m}} \leftarrow \text{height of mountain}$$

To DO:



② Draw a triangle: $\angle A = 42^\circ$, $AB = 24\text{cm}$, $BC = 18\text{cm}$
 Is there only one?

③ TEXT: p254/17 (azimuth + area)
 p257/3-5 (Law of Sines)

Answers - Azimuth Sheet

27. a) 80°

b) 50°

c) 100°

d) 130°

e) 140°

f) 120°

g) 116°

h) 114°

i) 90°

j) 40°

k) 90°

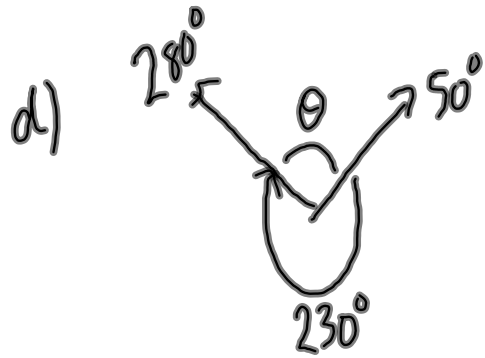
l) 70°

m) 110°

n) 100°

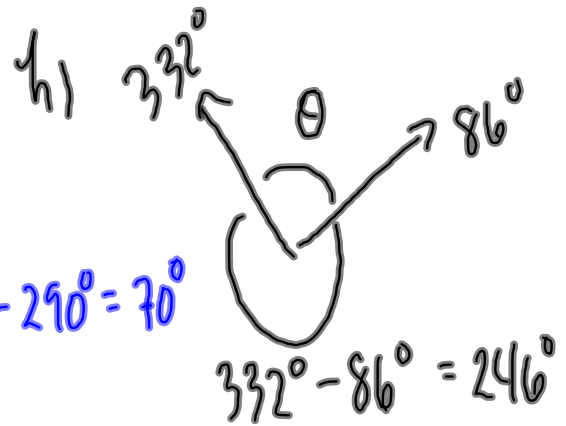
o) 77°

p) 117°



$\theta = 360^\circ - 230^\circ$

$\theta = 130^\circ$



$\theta = 360^\circ - 246^\circ$

$\theta = 114^\circ$

