

Lesson 2 Sine Law

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Lesson 2 Sine Law – Determining An Angle

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

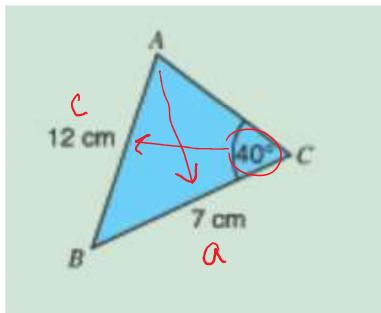
← another alternative

or use

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

Example 1

Determine the measure of angle A.



$$\begin{aligned} A &= ? \\ a &= 7 \\ C &= 40^\circ \\ c &= 12 \end{aligned}$$

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

$$\frac{7}{\sin A} = \frac{12}{\sin 40^\circ}$$

multiply

$$\sin A = \frac{7 \sin 40^\circ}{12}$$

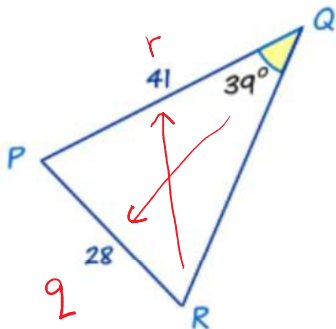
$$\sin A = 0.37495\dots$$

$$A = \sin^{-1}(0.37495\dots)$$

$$A = 22^\circ$$

Example 2

Determine the measure of angle R.



$$\begin{aligned} R &= ? \\ r &= 41 \\ Q &= 39^\circ \\ q &= 28 \end{aligned}$$

$$\frac{r}{\sin R} = \frac{q}{\sin Q}$$

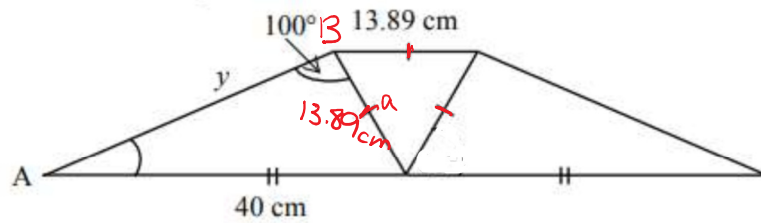
$$\frac{41}{\sin R} = \frac{28}{\sin 39^\circ}$$

$$\sin R = \frac{41 \sin 39^\circ}{28}$$

$$R = \sin^{-1}(\text{ans})$$

$$R = 67^\circ$$

* When the decimal is on the calculator screen, press 2nd/shift $\boxed{\sin}$ $\boxed{=}$

Example 3**Determine the measure of angle A.**

$$a = 13.89$$

$$A = ?$$

$$b = 40$$

$$B = 100$$

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

$$\frac{13.89}{\sin A} = \frac{40}{\sin 100^\circ}$$

$$\frac{13.89 \sin 100^\circ}{40} = \sin A$$

$$A = \sin^{-1}(0.34197\dots)$$

$$= 20^\circ$$

* on calc
shows 19.997...
rounds up
to 20°