THE SCROLLS – STUDENT A (SAMPLE RESPONSES)
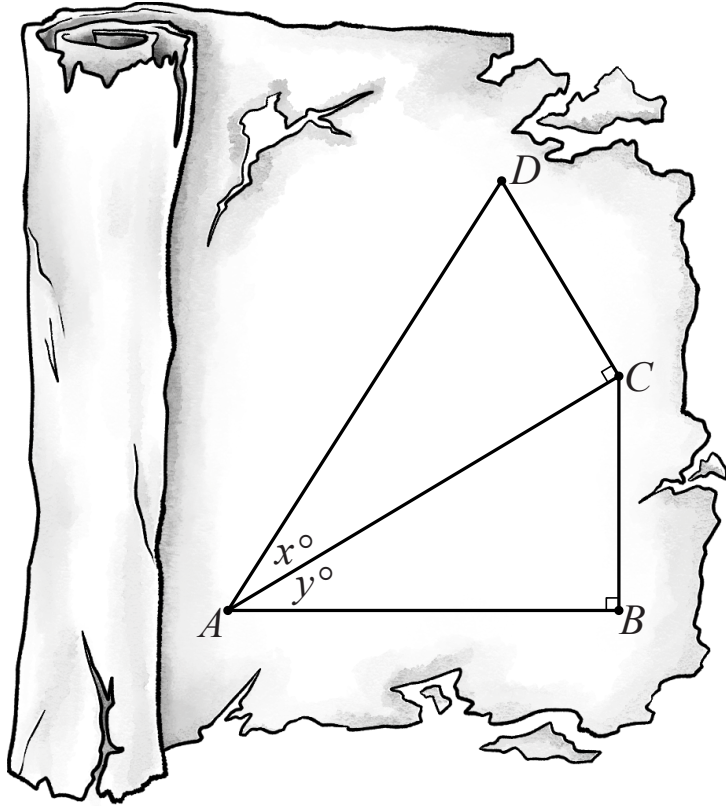
The focus of this task is to uncover the identity for $\sin(x+y)$. To ensure your success, you must work together efficiently and communicate effectively.

Step 1: Independent Work

Use the figure above to write ratios using sine and cosine.

$$\sin(x) = \frac{\overline{CD}}{\overline{AD}}$$

$$\cos(x) = \frac{\overline{AC}}{\overline{AD}}$$

$$\sin(y) = \frac{\overline{BC}}{\overline{AC}}$$

$$\cos(y) = \frac{\overline{AB}}{\overline{AC}}$$

Step 2: Independent Work

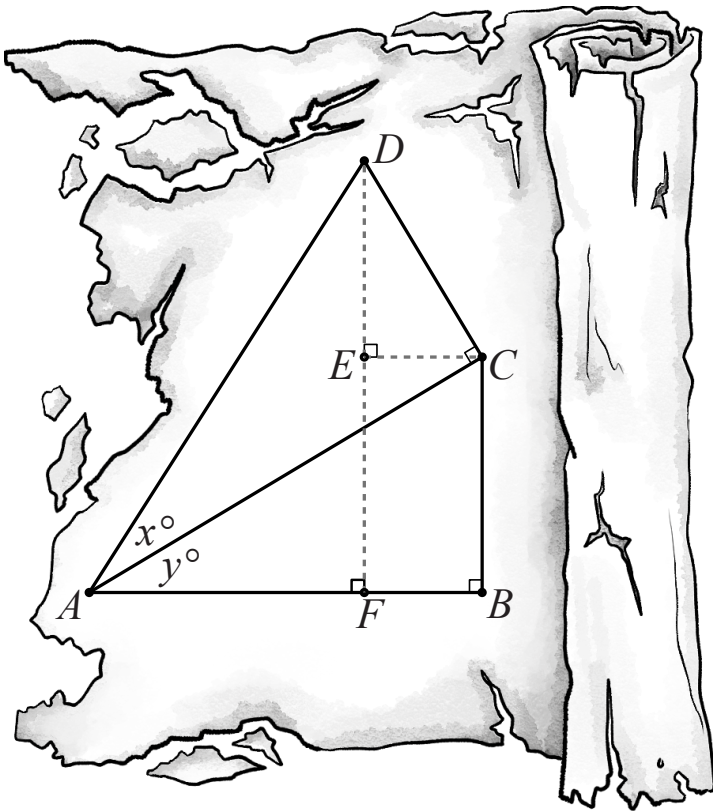Rewrite and simplify your equations above using $\overline{AD} = 1$.

$$\sin(x) = \frac{\overline{CD}}{1} = \overline{CD}$$

$$\cos(x) = \frac{\overline{AC}}{1} = \overline{AC}$$

$$\sin(y) = \frac{\overline{BC}}{\overline{AC}}$$

$$\cos(y) = \frac{\overline{AB}}{\overline{AC}}$$

THE SCROLLS – STUDENT B (SAMPLE RESPONSES)

The focus of this task is to uncover the identity for $\sin(x+y)$. To ensure your success, you must work together efficiently and communicate effectively.

$$\overline{AB} \parallel \overline{CE}$$
$$\angle CAB \cong \angle ACE$$
$$y° = m\angle ACE$$

Step 1: Independent Work

Find $m\angle CDE$ in terms of x and/or y. *Hint: Use the alternate interior angles theorem.*

$m\angle CDE = y°$

Step 2: Independent Work

Then use $\triangle CDE$ to write ratios using sine and cosine.

$\sin(y) = \dfrac{\overline{CE}}{\overline{CD}}$

$\cos(y) = \dfrac{\overline{DE}}{\overline{CD}}$

$\sin(90 - y) = \dfrac{\overline{DE}}{\overline{CD}}$

$\cos(90 - y) = \dfrac{\overline{CE}}{\overline{CD}}$