$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

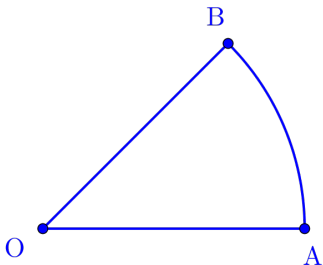$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

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▸ Start

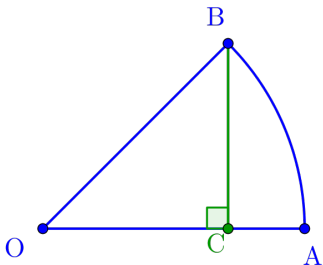$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

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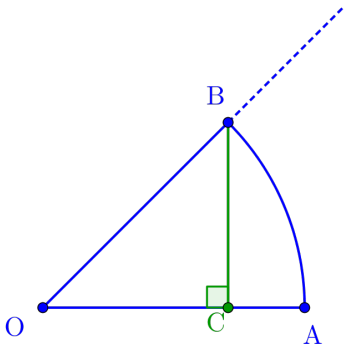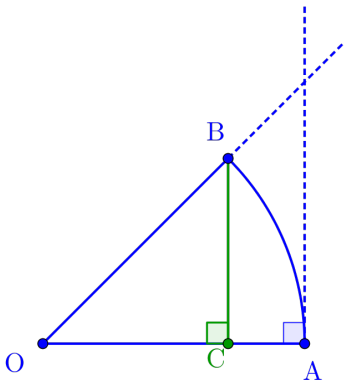
$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$
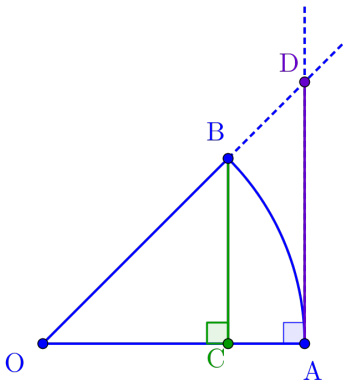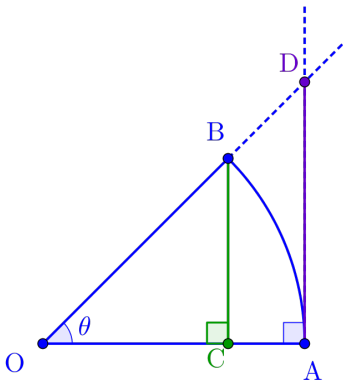
$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

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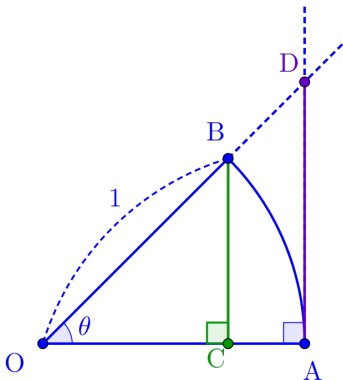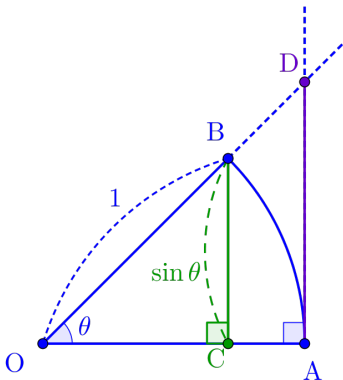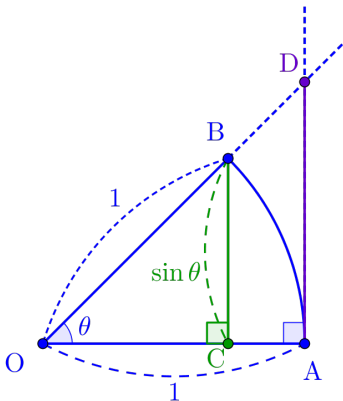
$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\overline{BC} < \operatorname{arc} AB$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\overline{BC} < \text{arc} \, AB$

$\sin \theta < \theta$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\overline{BC} < \text{arc AB}$

$\sin \theta < \theta$

$\dfrac{\sin \theta}{\theta} < 1$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\text{arc AB} < \overline{\text{AD}}$ $\overline{\text{BC}} < \text{arc AB}$

$\sin \theta < \theta$

$\dfrac{\sin \theta}{\theta} < 1$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$$\text{arc AB} < \overline{\text{AD}} \qquad \overline{\text{BC}} < \text{arc AB}$$

$$\theta < \tan \theta \qquad \sin \theta < \theta$$

$$\frac{\sin \theta}{\theta} < 1$$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

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$\mathrm{arc\, AB} < \overline{\mathrm{AD}}$ $\overline{\mathrm{BC}} < \mathrm{arc\, AB}$

$\theta < \tan \theta$ $\sin \theta < \theta$

$\cos \theta < \dfrac{\sin \theta}{\theta} < 1$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

Start

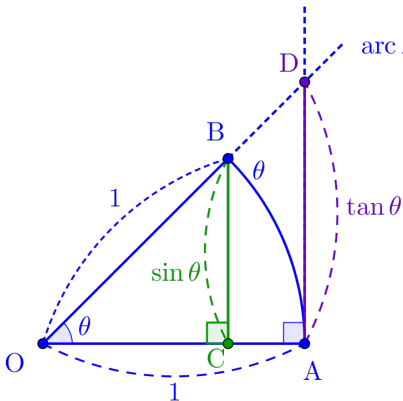$$\text{arc AB} < \overline{\text{AD}} \qquad \overline{\text{BC}} < \text{arc AB}$$

$$\theta < \tan \theta \qquad \sin \theta < \theta$$

$$\cos \theta < \frac{\sin \theta}{\theta} < 1$$

$$\lim_{\theta \to 0^+} \cos \theta \le \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \le 1$$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$
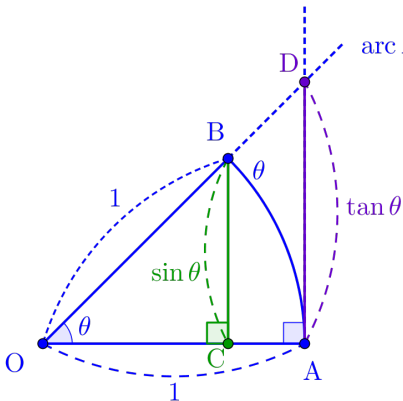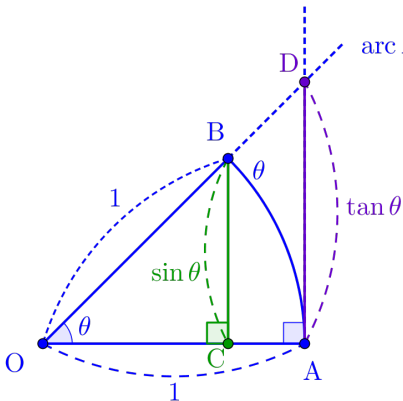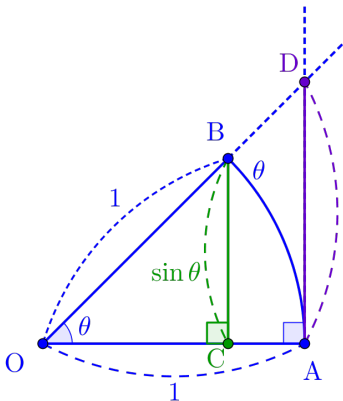
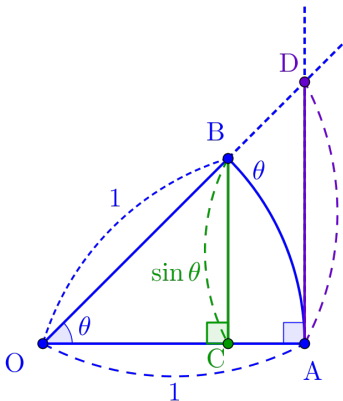$$\text{arc } AB < \overline{AD} \qquad \overline{BC} < \text{arc } AB$$

$$\theta < \tan \theta \qquad \sin \theta < \theta$$

$$\cos \theta < \frac{\sin \theta}{\theta} < 1$$

$$\lim_{\theta \to 0^+} \cos \theta \leq \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$$

$$1 \leq \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

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▸ Start

$\text{arc AB} < \overline{\text{AD}} \qquad \overline{\text{BC}} < \text{arc AB}$

$\theta < \tan \theta \qquad \sin \theta < \theta$

$\cos \theta < \dfrac{\sin \theta}{\theta} < 1$

$\displaystyle\lim_{\theta \to 0^+} \cos \theta \leq \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$

$1 \leq \displaystyle\lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$

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$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\text{arc AB} < \overline{\text{AD}} \qquad \overline{\text{BC}} < \text{arc AB}$
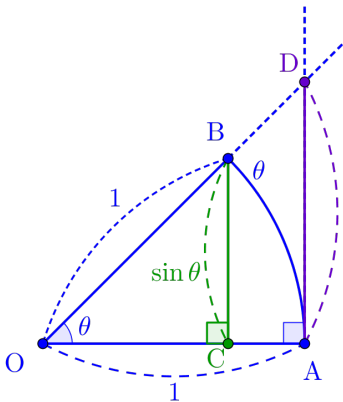
$\theta < \tan \theta \qquad \sin \theta < \theta$

$\cos \theta < \dfrac{\sin \theta}{\theta} < 1$

$\displaystyle \lim_{\theta \to 0^+} \cos \theta \le \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \le 1$

$1 \le \displaystyle \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \le 1$

$\displaystyle \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} = 1$

$\left(\because \dfrac{\sin \theta}{\theta} \text{ is even.} \right)$

$$\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1$$

$\text{arc AB} < \overline{\text{AD}} \qquad \overline{\text{BC}} < \text{arc AB}$

$\theta < \tan \theta \qquad \sin \theta < \theta$
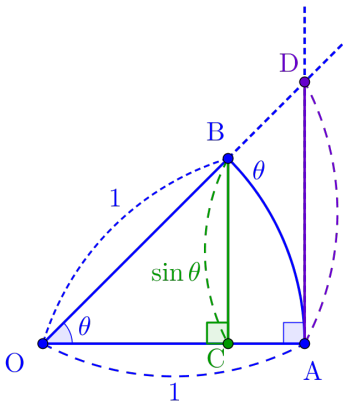
$\cos \theta < \dfrac{\sin \theta}{\theta} < 1$

$\displaystyle\lim_{\theta \to 0^+} \cos \theta \leq \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$

$1 \leq \displaystyle\lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$

$\displaystyle\lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} = 1$

$\therefore \displaystyle\lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1 \quad (\because \frac{\sin \theta}{\theta} \text{ is even.})$

$\text{arc AB} < \overline{\text{AD}}$ $\overline{\text{BC}} < \text{arc AB}$

$\theta < \tan \theta$ $\sin \theta < \theta$

$$\cos \theta < \frac{\sin \theta}{\theta} < 1$$

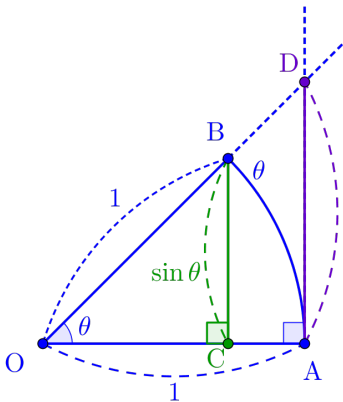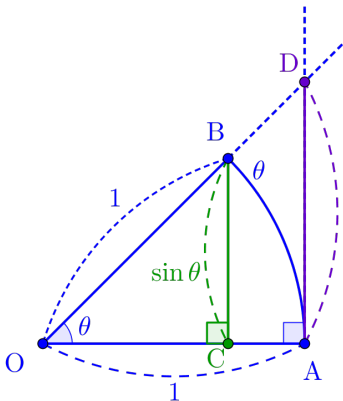$$\lim_{\theta \to 0^+} \cos \theta \leq \lim_{\theta \to 0^+} \frac{\sin \theta}{\theta} \leq 1$$

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$$\therefore \lim_{\theta \to 0} \frac{\sin \theta}{\theta} = 1 \quad (\because \frac{\sin \theta}{\theta} \text{ is even.})$$