

Trigonometría

5. Relaciones de las funciones trigonométricas para ángulos notables de un triángulo rectángulo.



SECUNDARIA



¿Qué aprenderemos?

Identificar y reconocer las relaciones de las funciones trigonométricas para ángulos notables.



Hallar el valor numérico de las siguientes expresiones trigonométricas sin usar calculadora.

Arrastra el valor numérico de cada expresión:

$$\frac{\text{sen}30^\circ + \text{cos}60^\circ}{\text{tan}45^\circ} = \frac{\boxed{} + \boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1
1

$$\begin{aligned}
 5\sin 30^\circ - 3\sqrt{2}\sin 45^\circ + \frac{1}{4}\tan 45^\circ &= 5 \cdot \boxed{} - \boxed{} \cdot \boxed{} + \boxed{} \cdot \boxed{} \\
 &= \boxed{} - \boxed{} + \boxed{} \\
 &= \frac{5}{2} - \boxed{} + \frac{1}{4} \\
 &= \boxed{}
 \end{aligned}$$

$$\frac{1}{2}$$

$$\frac{\sqrt{2}}{2}$$

$$1$$

$$\frac{1}{4}$$

$$-\frac{1}{4}$$

$$\frac{3\sqrt{4}}{2}$$

$$\frac{5}{2}$$

$$3\sqrt{2}$$

$$\frac{1}{4}$$

$$\frac{3 \cdot 2}{2}$$

$$\begin{aligned}
 (\cos 30^\circ - \cos 45^\circ)(\cos 30^\circ + \cos 45^\circ) &= (\boxed{} - \boxed{})(\boxed{} + \boxed{}) \\
 &= (\boxed{})^2 - (\boxed{})^2 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\frac{\sqrt{3}}{2}$$

$$\frac{3}{4}$$

$$\frac{\sqrt{3}}{2}$$

$$\frac{2}{4}$$

$$\frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2}$$

$$\frac{1}{4}$$

$$\frac{\sqrt{3}}{2}$$

$$\begin{aligned}
 \frac{2\text{sen}60^\circ}{\cot 30^\circ - 4\text{sen}45^\circ} &= \frac{2 \cdot \boxed{}}{\boxed{} - 4 \cdot \boxed{}} = \frac{\sqrt{3}}{\sqrt{3} - 2 \cdot \sqrt{2}} \\
 &= \frac{\boxed{}}{\boxed{}} \cdot \frac{\boxed{}}{\boxed{}} \\
 &= \frac{\sqrt{9} + 2\sqrt{6}}{(\sqrt{3})^2 - (2\sqrt{2})^2} \\
 &= \frac{3 + 2\sqrt{6}}{3 - \boxed{}} \\
 &= \frac{\boxed{} + 2\sqrt{6}}{-5} \\
 &= \frac{-3 - \boxed{}}{5}
 \end{aligned}$$

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$\sqrt{3}$

$\frac{\sqrt{2}}{2}$

$\sqrt{3}$

$\frac{\sqrt{3}}{2}$

$\sqrt{3} - 2 \cdot \sqrt{2}$

$4 \cdot 2$

$\sqrt{3} + 2 \cdot \sqrt{2}$

$2\sqrt{6}$

$\sqrt{3} + 2 \cdot \sqrt{2}$

$$\begin{aligned}
 \frac{\tan^2 30^\circ + \sin^2 30^\circ}{(\sin 45^\circ)^{-2} : (\sin 30^\circ)^{-2}} &= \frac{(\boxed{})^2 + (\boxed{})^2}{1} \\
 &= \frac{\frac{\frac{\sqrt{3}}{3}}{\frac{1}{2}} + \frac{\frac{4}{2}}{\frac{1}{2}}}{\frac{1}{\frac{1}{4}}} = \frac{\frac{3}{9} + \frac{1}{4}}{\frac{1}{\frac{1}{4}}} \\
 &= \frac{\frac{1}{3} + \frac{1}{4}}{\frac{1}{\frac{1}{4}}} = \frac{\frac{7}{12}}{\frac{1}{\frac{1}{4}}} = \frac{7}{12} \cdot \frac{4}{1} = \frac{7}{3}
 \end{aligned}$$

$\frac{\sqrt{3}}{3}$ $\frac{4}{2}$
 $\sin 30^\circ$ $\sin 45^\circ$
 $\frac{1}{2}$ $\tan 30^\circ$
 $\sin 30^\circ$
 $\frac{\sqrt{2}}{2}$ $\frac{1}{2}$
 $\frac{7}{6}$