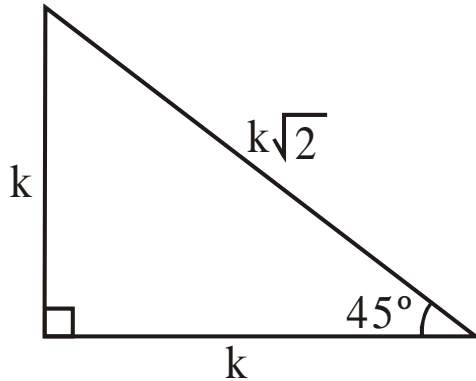




ÁNGULOS AGUDOS DE 45 GRADOS

Principios Teóricos

Para definir la R.T. de 45° utilizaremos el cuyo lados es proporcional a:



Entonces:

$$\hat{a} \quad \text{sen}45^\circ = \frac{\text{c.o.}}{h} \Rightarrow \text{sen}45^\circ = \frac{k}{k\sqrt{2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{\sqrt{2}}{2}}$$

$$\hat{a} \quad \text{cos}45^\circ = \frac{\text{c.a.}}{h} \Rightarrow \text{cos}45^\circ = \frac{k}{k\sqrt{2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{\sqrt{2}}{2}}$$

$$\hat{a} \quad \text{tg}45^\circ = \frac{\text{c.o.}}{\text{c.a.}} \Rightarrow \text{tg}45^\circ = \frac{k}{k} = \boxed{1}$$

$$\hat{a} \quad \text{ctg}45^\circ = \frac{\text{c.a.}}{\text{c.o.}} \Rightarrow \text{ctg}45^\circ = \frac{k}{k} = 1$$

$$\hat{a} \quad \text{sec}45^\circ = \frac{h}{\text{c.o.}} \Rightarrow \text{sec}45^\circ = \frac{k\sqrt{2}}{k} = \boxed{\sqrt{2}}$$

$$\hat{a} \quad \text{csc}45^\circ = \frac{h}{\text{c.a.}} \Rightarrow \text{csc}45^\circ = \frac{k\sqrt{2}}{k} = \boxed{\sqrt{2}}$$

❖ **Tabla de resumen:**

	sen	cos	tg	ctg	sec	csc
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	1	$\sqrt{2}$	$\sqrt{2}$

Ejemplos:

1) Halla el valor de:

$$\frac{\text{sen}45^\circ \cos 45^\circ}{\tan 45^\circ}$$

Solución:

Reemplazando los valores

$$\frac{\frac{\sqrt{2}}{2} \cdot \frac{\sqrt{2}}{2}}{1} = \frac{\frac{\sqrt{4}}{4}}{1} = \frac{\frac{4}{4}}{\frac{1}{1}} = \frac{1}{1} = 1$$

2) Halla el valor de:

$$(\sec 45^\circ + \csc 45^\circ)^2$$

Solución:

Reemplazando los valores

$$\begin{aligned} &(\sqrt{2} + \sqrt{2})^2 \\ &(2\sqrt{2})^2 = 2^2 \sqrt{2}^2 = 4 \cdot 2 = 8 \end{aligned}$$



1. Calcular P si

$$P = \sqrt{2} \cdot \cos 45^\circ$$

2. Calcular M

$$M = \sqrt{2} \cdot \cos 45^\circ + 1$$

3. Calcular M

$$M = \frac{\sqrt{2}\text{sen}45^\circ + 1}{\sqrt{2} + 1}$$

4. Calcular

$$M = \frac{\text{sen}45^\circ}{4}$$

8. Calcular H si

$$H = \frac{4 \cos 45^\circ}{\text{tg}45^\circ}$$

5. Calcular el valor de Y

$$Y = 2 \csc^2 45^\circ \cdot \text{tg}45^\circ$$

6. Calcular P

$$P = \frac{2 \sec 45^\circ}{\cos 45^\circ}$$

7. Calcular M si:

$$M = \sec 45^\circ + \csc 45^\circ$$

PARA LA CASA

1. Calcular M si

$$M = 16 \csc 45^\circ$$

2. Calcular

$$M = (\text{tg}45^\circ + \text{ctg}45^\circ)^2$$

3. Calcular

$$\sqrt{2} \cdot \text{tg}45^\circ \cdot \sec 45^\circ$$

4. Calcular

$$\frac{\text{sen}^2 45^\circ}{2}$$

5. Calcular el valor de M si

$$M = \sqrt{2} \text{Sen}45^\circ$$

6. Calcular P

$$P = \cos 45^\circ \cdot \text{sen}45^\circ \cdot \csc 45^\circ \cdot \sqrt{2}$$

7. Calcular H si:

$$H = \text{sen}^2 45^\circ \cdot 2$$

8. Calcular:

$$(\text{sen}^2 45^\circ + \cos 45^\circ) \cdot \sec 45^\circ$$

9. Calcular

$$\sqrt{2} \text{sen}^2 45^\circ$$