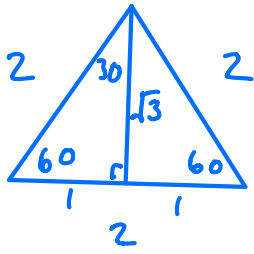


Sin, cos, tan of  $0^\circ$   $30^\circ$   $45^\circ$   $60^\circ$   $90^\circ$



$$\cos 60^\circ = \frac{1}{2}$$

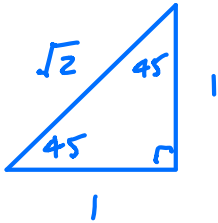
$$\cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$\sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\sin 30^\circ = \frac{1}{2}$$

$$\tan 60^\circ = \frac{\sqrt{3}}{1}$$

$$\tan 30^\circ = \frac{1}{\sqrt{3}}$$



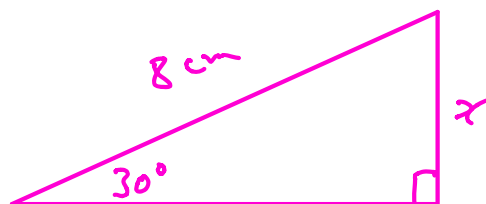
$$\cos 45^\circ = \frac{1}{\sqrt{2}}$$

$$\sin 45^\circ = \frac{1}{\sqrt{2}}$$

$$\tan 45^\circ = \frac{1}{1}$$

Table to Memorise

	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$
Sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
Tan	0	$\frac{1}{\sqrt{3}}$	1	$\frac{\sqrt{3}}{1}$	$\infty$



$$\sin 30 = \frac{x}{8}$$

$$8 \sin 30 = x$$

$$8 \times \frac{1}{2} = x$$

$$x = 4 \text{ cm}$$

## Indices

$$1) x^p \times x^q = x^{p+q}$$

$$2) x^p \div x^q = x^{p-q}$$

$$3) (x^p)^q = x^{p \times q}$$

$$4) x^0 = 1$$

$$5) x^1 = x$$

$$6) x^{-p} = \frac{1}{x^p}$$

$$7) x^{\frac{1}{p}} = \sqrt[p]{x}$$

$$8) x^{p/q} = (\sqrt[q]{x})^p \text{ or } \sqrt[q]{x^p}$$

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## Examples

$$1) 5^{-3} = \frac{1}{5^3} = \frac{1}{125}$$

$$2) 64^{2/3} = (\sqrt[3]{64})^2 = 4^2 = 16$$

$$3) 4^{-5/2} = \frac{1}{4^{5/2}} = \frac{1}{(\sqrt[2]{4})^5} = \frac{1}{2^5} = \frac{1}{32}$$

$$4) \left(\frac{8}{27}\right)^{-2/3} = \left(\frac{27}{8}\right)^{2/3} = \left(\sqrt[3]{\frac{27}{8}}\right)^2 = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

## Exercise

$$1) \quad 25^{3/2} = \left(\sqrt[2]{25}\right)^3 = 5^3 = 125$$

$$2) \quad 8^{4/3} = \left(\sqrt[3]{8}\right)^4 = 2^4 = 16$$

$$3) \quad \left(\frac{25}{36}\right)^{-1/2} = \left(\frac{36}{25}\right)^{1/2} = \sqrt{\frac{36}{25}} = \frac{6}{5}$$

$$4) \quad 27^{-2/3} = \frac{1}{27^{2/3}} = \frac{1}{\left(\sqrt[3]{27}\right)^2} = \frac{1}{3^2} = \frac{1}{9}$$

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