What's Going On?

Checking In

Minds on Another old friend :)

Action! Some new friends!

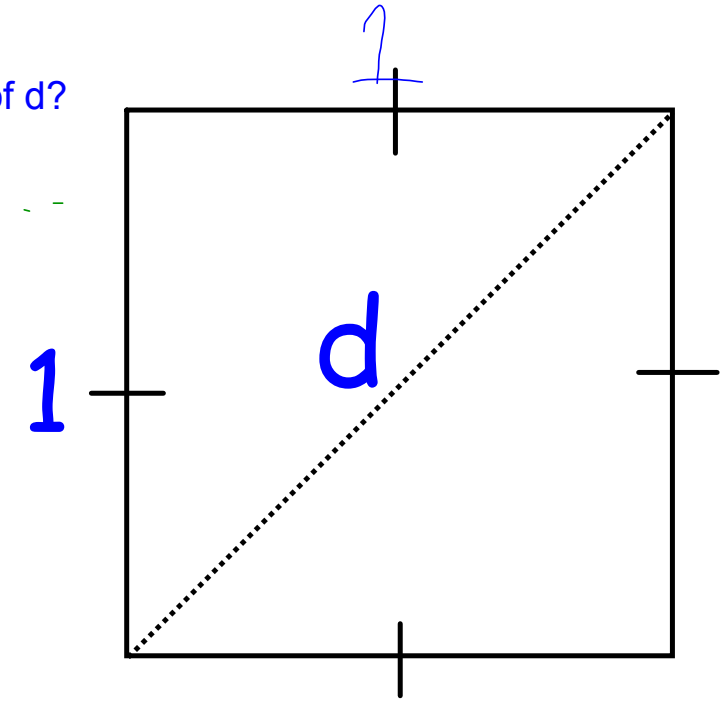
Consolidation Using your friends.

Learning Goal - I will know the trig ratios of our special angles and be able to apply operations to them.

Minds on

Another Old Friend

1. What is the EXACT length of d?



1.41421356.....

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

$\sqrt{2}$

$d^2 = 1^2 + 1^2$

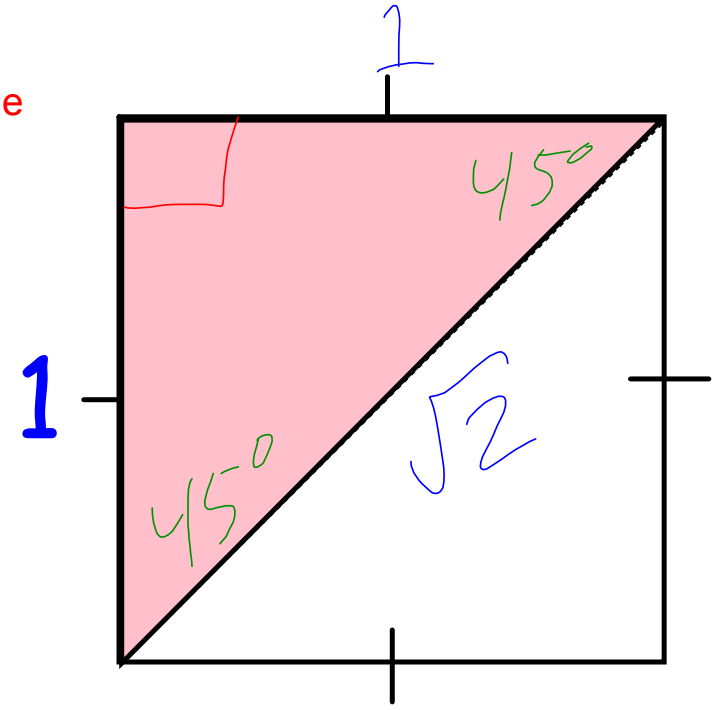
$\sqrt{d^2} = \sqrt{2}$

$d = \sqrt{2}$

Minds on

Another Old Friend

2. What are the measures of the angles in the red triangle?

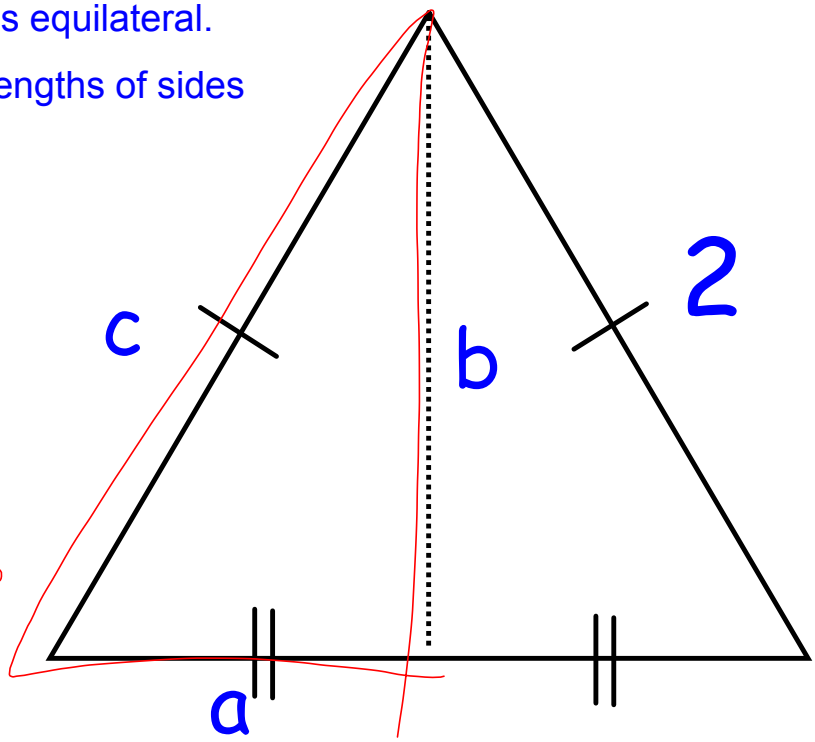


Minds on

Another Old Friend

The large triangle below is equilateral.

1. What are the EXACT lengths of sides a, b and c?



$a = 1$

$b = \sqrt{3}$

$c = 2$

$c^2 = a^2 + b^2$

$2^2 = 1^2 + b^2$

$4 = 1 + b^2$

$-1 \quad -1$

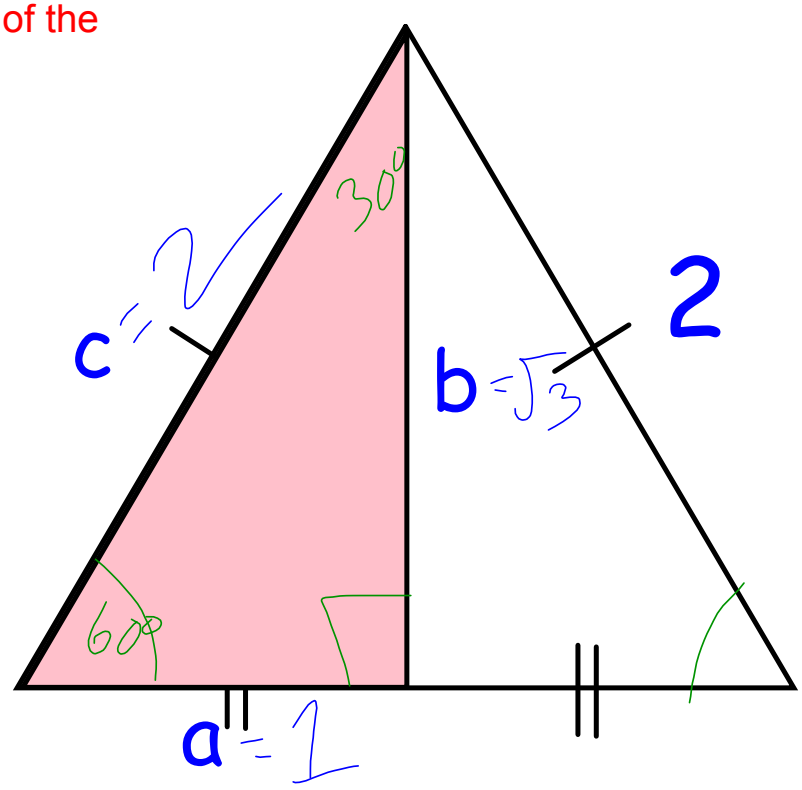
$\sqrt{b^2} = \sqrt{3}$

$b = \sqrt{3}$

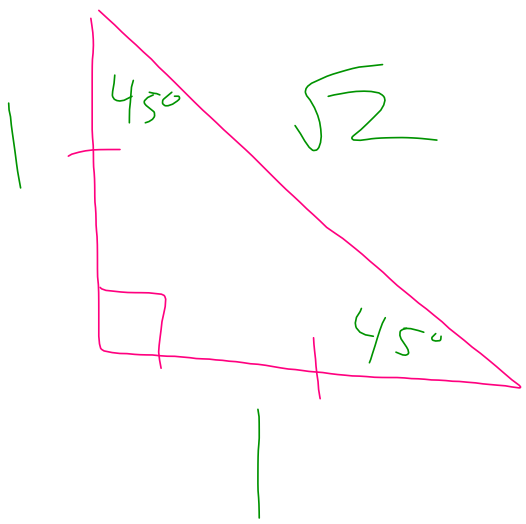
Minds on

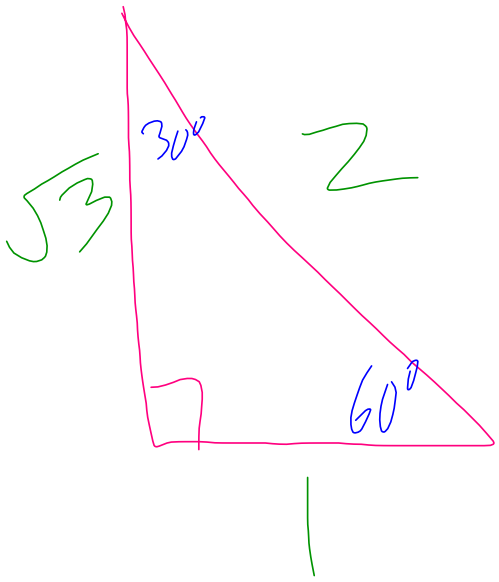
Another Old Friend

2. What are the measures of the angles in the red triangle?



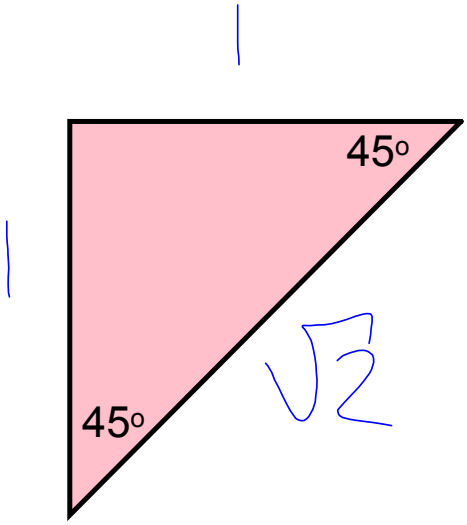
The Special Triangles





Action!

Some New Friends



What are the **6** trigonometric ratios for a 45 degree angle?

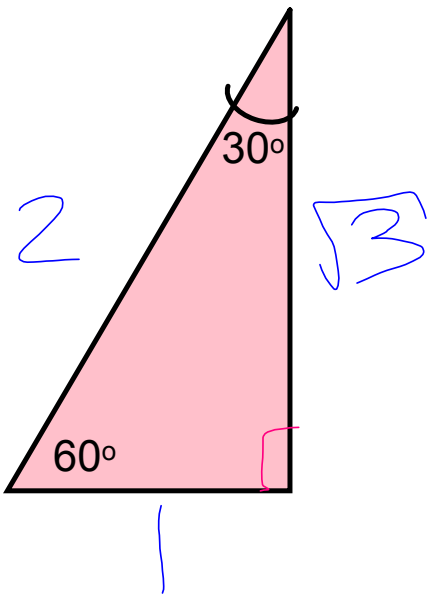
$\sin 45^\circ = \frac{1}{\sqrt{2}}$ $\csc 45^\circ = \sqrt{2}$

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

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

Action!

Some New Friends



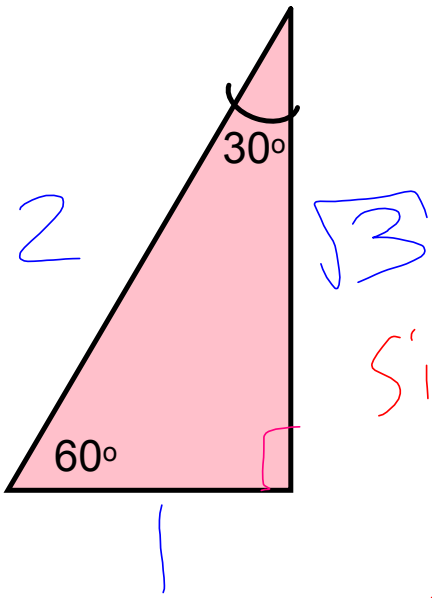
What are the **6** trigonometric ratios for a 30 degree and a 60 degree angle?

30°

$\sin 30° = \frac{1}{2}$ $\quad \csc 30° = 2$

$\cos 30° = \frac{\sqrt{3}}{2}$ $\quad \sec 30° = \frac{2}{\sqrt{3}}$

$\tan 30° = \frac{1}{\sqrt{3}}$ $\quad \cot 30° = \sqrt{3}$



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

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

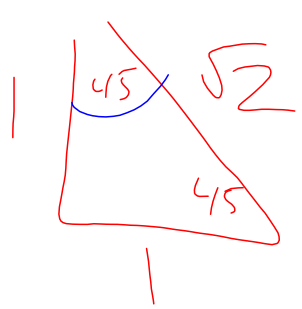
$\tan 60^\circ = \sqrt{3}$ $\cot 60^\circ = \frac{1}{\sqrt{3}}$

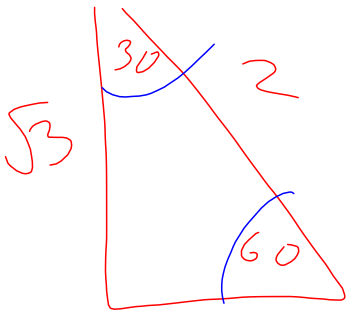
Consolidation

Using your friends

Determine the exact value of:

$$(\sin 45^o)(\cos 45^o) + (\sin 30^o)(\sin 60^o)$$





$$= \left(\frac{1}{\sqrt{2}}\right)\left(\frac{1}{\sqrt{2}}\right) + \left(\frac{1}{2}\right)\left(\frac{\sqrt{3}}{2}\right)$$

$\sqrt{2 \times 2} = \sqrt{4} = 2$

$$= \frac{1}{2} + \frac{\sqrt{3}}{4}$$

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

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