



$R \cos(x + \alpha)$

Expand $R \cos(x + \alpha)$
[or sin, or minus]
and compare
with

$a \sin x + b \cos x$
to get

$\sin \alpha = \dots$

$\cos \alpha = \dots$

$\Rightarrow \tan \alpha = \dots$

$R = \sqrt{a^2 + b^2}$

MAX/MIN

create the baby

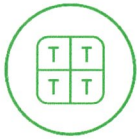
$\cos(x + \alpha)$

baby =

baby =

baby =

check each in
turn to find max/min



TRIGONOMETRY $R \cos(x + \alpha)$

1	2	3	4	5
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Find the max value of $H(\theta) = \frac{2}{1 + (5 \sin \theta - 6 \cos \theta)^2}$
and find the first 2 values of $\theta^\circ > 0$ for which the
maximum is obtained.

$$5 \sin \theta - 6 \cos \theta = R \sin(\theta - \alpha)$$

$$= R \sin \theta \cos \alpha - R \cos \theta \sin \alpha$$

$$\left\{ \begin{array}{l} \tan \alpha = \frac{6}{5} \\ \alpha = 50.19442891 \end{array} \right.$$



$$R = \sqrt{61} = 50.2 \text{ (3sf)}$$

$$H(\theta) = \frac{2}{1 + [\sqrt{61} \sin(\theta - 50.2)]^2}$$

- Baby = 0 :
- Baby = 1 :
- Baby = -1 :

$$\sin(\theta - 50.2) = 0$$

$$y =$$

$$\theta = y + 50.2$$

$$\theta =$$

