

Trigonometry #2

1. Use your calculator to find the following, *to 3 decimal places*:

- | | |
|--------------------|---------------------|
| a) $\sin 16^\circ$ | f) $\sin 90^\circ$ |
| b) $\tan 40^\circ$ | g) $\tan 53^\circ$ |
| c) $\cos 78^\circ$ | h) $\sin 0.5^\circ$ |
| d) $\sin 0^\circ$ | i) $\cos 0^\circ$ |
| e) $\cos 90^\circ$ | |

2. Complete the equation using whole words: Sine =

Cosine =

Tangent =

3. Look at the triangle on the right.

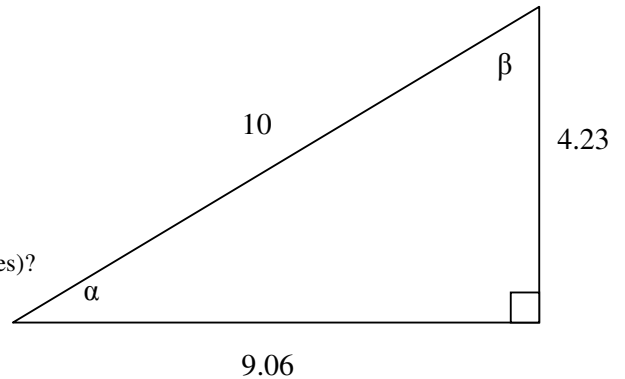
- a) If α equals 31° , what is the value of β ?

- b) Underline the best answer in the parentheses:

$\cos \alpha = (\sin, \cos, \tan) \beta$

- c) What is the value of $\cos \alpha$ (answer to 3 decimal places)?

4. a) If you know the cosine of an angle and the length of the hypotenuse of a right triangle, write the formula to calculate the length of the adjacent side (A diagram may help).



- b) If you know the sine of an angle and the length of the opposite side, write the formula to calculate the length of the hypotenuse.

- c) If you know the tangent of an angle and the length of the adjacent side, write the formula to calculate the length of the opposite side.

- d) If you know the tangent of an angle and the length of the opposite side, write the formula to calculate the length of the adjacent side.

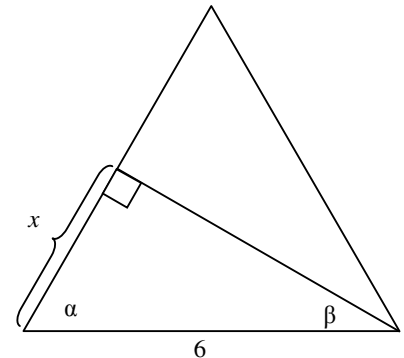
5. Look at the equilateral triangle on the right. One angle has been bisected, making a right triangle.

- a) What is the angle α , each internal angle of the equilateral triangle?

- b) What is angle β , the bisected angle?

- c) If the length of each side of the equilateral triangle is 6, what is the length x ?

- d) From the diagram, what is $\sin \beta$? What is $\cos \alpha$? Check your answer using your calculator.



Trigonometry #2 - Answers

1. Use your calculator to find the following, **to 3 decimal places**:

a) $\sin 16^\circ = \underline{0.276}$

f) $\sin 90^\circ = \underline{1.000}$

b) $\tan 40^\circ = \underline{0.839}$

g) $\tan 53^\circ = \underline{1.327}$

c) $\cos 78^\circ = \underline{0.208}$

h) $\sin 0.5^\circ = \underline{0.009}$

d) $\sin 0^\circ = \underline{0.000}$

i) $\cos 0^\circ = \underline{1.000}$

e) $\cos 90^\circ = \underline{0.000}$

2. Complete the equation using whole words: Sine = Opposite / Hypotenuse

Cosine = Adjacent / Hypotenuse

Tangent = Opposite / Adjacent

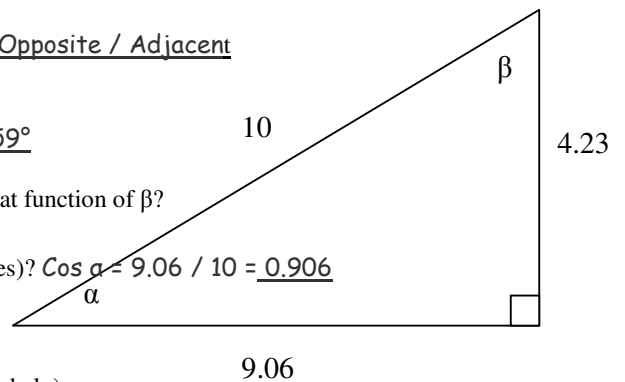
3. Look at the triangle on the right.

a) If α equals 31° , what is the value of β ? $= 90 - 31 = \underline{59^\circ}$

b) The function $\cos \alpha$ would have the same value as what function of β ?

$\cos \alpha = \underline{\sin \beta}$

c) What is the value of $\cos \alpha$ (answer to 3 decimal places)? $\cos \alpha = 9.06 / 10 = \underline{0.906}$



4. a) If you know the cosine of an angle and the length of the hypotenuse of a right triangle, write the formula to calculate the length of the adjacent side (A diagram may help).

$\underline{A = H \cos \alpha}$

b) If you know the sine of an angle and the length of the opposite side, write the formula to calculate the length of the hypotenuse. $\underline{H = O / \sin \alpha}$

c) If you know the tangent of an angle and the length of the adjacent side, write the formula to calculate the length of the opposite side. $\underline{O = A \tan \alpha}$

d) If you know the tangent of an angle and the length of the opposite side, write the formula to calculate the length of the adjacent side. $\underline{A = O / \tan \alpha}$

5. Look at the equilateral triangle on the right. One angle has been bisected, making a right triangle.

a) What is the angle α , each internal angle of the equilateral triangle? $\underline{60^\circ}$

b) What is angle β , the bisected angle? $\underline{30^\circ}$

c) If the length of each side of the equilateral triangle is 6, what is the length x ? $\underline{3}$

d) From the diagram, what is $\sin \beta$? What is $\cos \alpha$? Check your answer using your calculator. $\sin \beta = \cos \alpha = \frac{6}{12} = \frac{1}{2} = \underline{0.5}$

