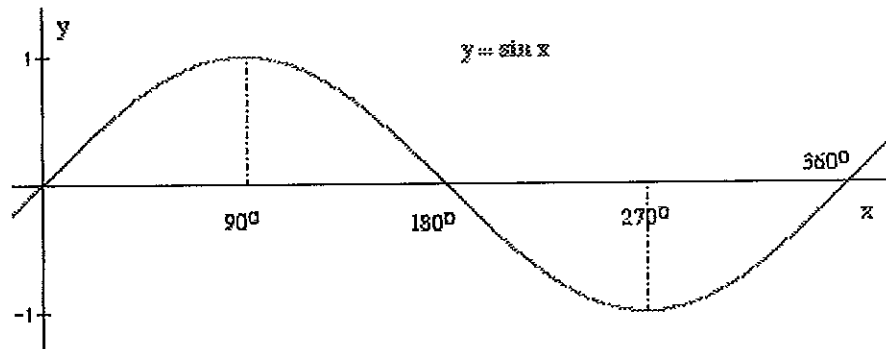


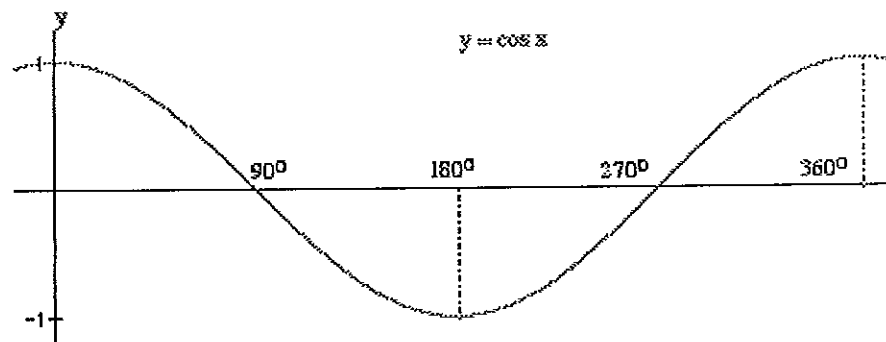
Trigonometric Graphs

From the trigonometric values for various angles, the following graphs can be drawn. The graphs are usually shown between 0° and 360° , but can be continued for angles less than 0° and greater than 360° .

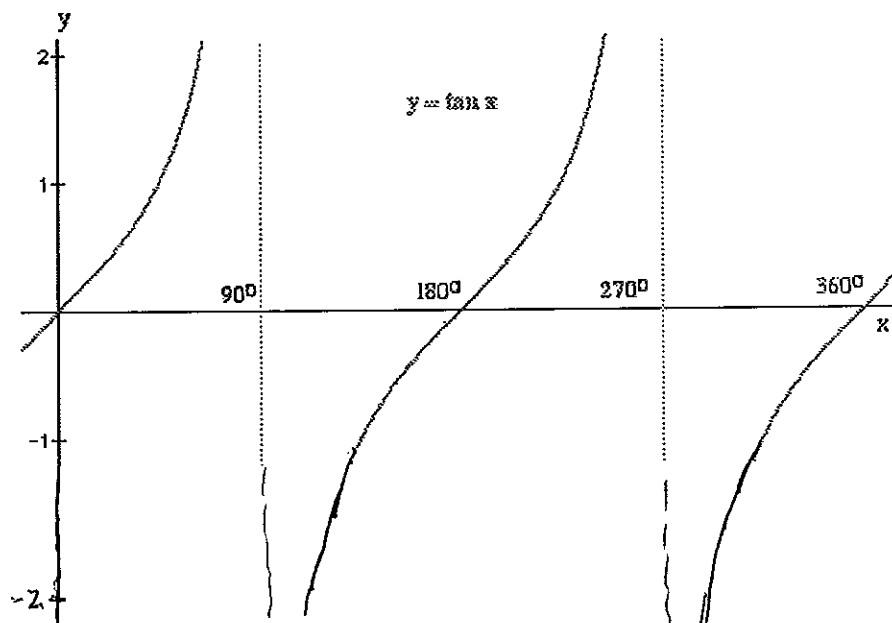
(a) $y = \sin x$



(b) $y = \cos x$



(c) $y = \tan x$





- These graphs have a regular pattern and so are called **periodic** functions.
- The maximum value of the sine and cosine graphs is 1 and the minimum value is -1.
- The tangent graph has asymptotes at 90° and 270° . i.e. $\tan 90^\circ$ and $\tan 270^\circ$ are said to be undefined.
As the angle gets closer to 90° and 270° the value of the tangent tends towards infinity (∞).

To see how these graphs are made, click below:

[y = sine x](#)

[y = cosine x](#)

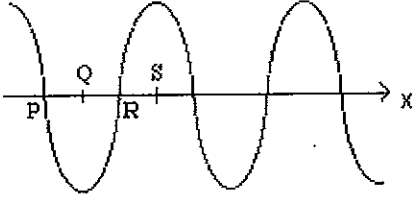
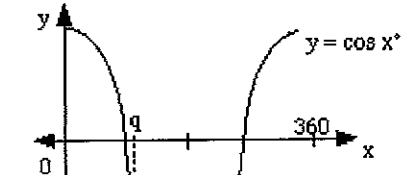
[y = tangent x](#)

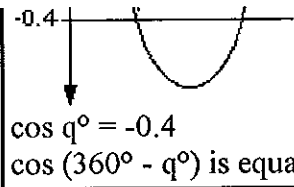


Trigonometric Graphs

Unit Test #43

Select your answers to the following 10 questions from the pop-up menus in the right hand column. When you are satisfied with your answers, fill in your name in the space provided below the test, and click the "Submit Test" button. Clicking the "Begin Test Again" button will clear all the answers.

Q1:	What is the minimum value of the function $y = \sin x$?	A. 1 B. -1 C. -2 D. 0	Answer 1:	<input type="text"/>
Q2:	What is the period of the function $y = \cos x$?	A. 90° B. 180° C. 360° D. 1	Answer 2:	<input type="text"/>
Q3:	Which of the following functions are undefined for $x = 90^\circ$ and $x = 270^\circ$?	A. $y = \sin x$ B. $y = \cos x$ C. $y = \tan x$ D. None of these	Answer 3:	<input type="text"/>
Q4:	The point $(270^\circ, -1)$ lies on which of the following curves? I. $y = \sin x$ II. $y = \cos x$ III. $y = \tan x$	A. I only B. II only C. III only D. I and III only	Answer 4:	<input type="text"/>
Q5:	 <p>For this sketch to be part of the cosine function, the y-axis would pass through:</p>	A. P B. Q C. R D. S	Answer 5:	<input type="text"/>
Q6:	Which of the following points would lie on the graph of $y = \cos x^\circ$	A. $(90, 0)$ B. $(180, 0)$ C. $(0, 0)$ D. $(360, 0)$	Answer 6:	<input type="text"/>
Q7:		A. - 0.4	Answer	<input type="text"/>

	 <p> $\cos q^\circ = -0.4$ $\cos (360^\circ - q^\circ)$ is equal to: </p>	<p> C. -0.6 D. 0.6 </p>		
Q8:	<p> Which of the following points would not lie on the graph of $y = \sin x^\circ$ </p>	<p> A. (0, 0) B. (90, 1) C. (180, 0) D. (270, 1) </p>	Answer 8:	<input type="checkbox"/>
Q9:	<p> Which of the following graphs would pass through the origin (0, 0)? </p>	<p> A. $y = \sin x$, $y = \cos x$ and $y = \tan x$ B. $y = \tan x$ and $y = \cos x$ C. $y = \cos x$ and $y = \sin x$ D. $y = \sin x$ and $y = \tan x$ </p>	Answer 9:	<input type="checkbox"/>
Q10:	<p> For what values of x between 0° and 360° is the function $y = \tan x$ undefined? </p>	<p> A. 0° and 180° B. 0° and 270° C. 90° and 270° D. 90° and 180° </p>	Answer 10:	<input type="checkbox"/>

Enter your initial and surname here:

Submit Test

Begin Test Again

Trigonometric Graphs

1. Find (to 4 significant figures)

- (a) $\cos 130^\circ$
- (b) $\sin 359.5^\circ$
- (c) $\tan 135^\circ$
- (d) $\sin 179^\circ$
- (e) $\cos 179^\circ$
- (f) $\tan 179^\circ$

2. Complete the table (read your answers from the trigonometric graphs not from your calculator):

x	0°	90°	180°	270°	360°
$\sin x$					
$\cos x$					
$\tan x$					

3. (a) Sketch the graphs of $y = \sin x$ and $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$

Draw and label the y-axis clearly.

- (b) Give the coordinates of the two points where $\sin x = \cos x$, as accurately as possible.
- (c) For what x value does $\cos x = -1$?
- (d) What is the range of both functions?

Trigonometric Ratios

1. (a) -0.6428

(b) -0.008727

(c) -1

(d) 0.01745 (e) - 0.9998 (f) -0.01746

2.

0	1	0	-1	0
1	0	-1	0	1
0	∞	0	∞	0

3. (b) $(45^\circ, 0.7)$, $(225^\circ, -0.7)$

(c) 180°

(d) $-1 \leq y \leq 1$