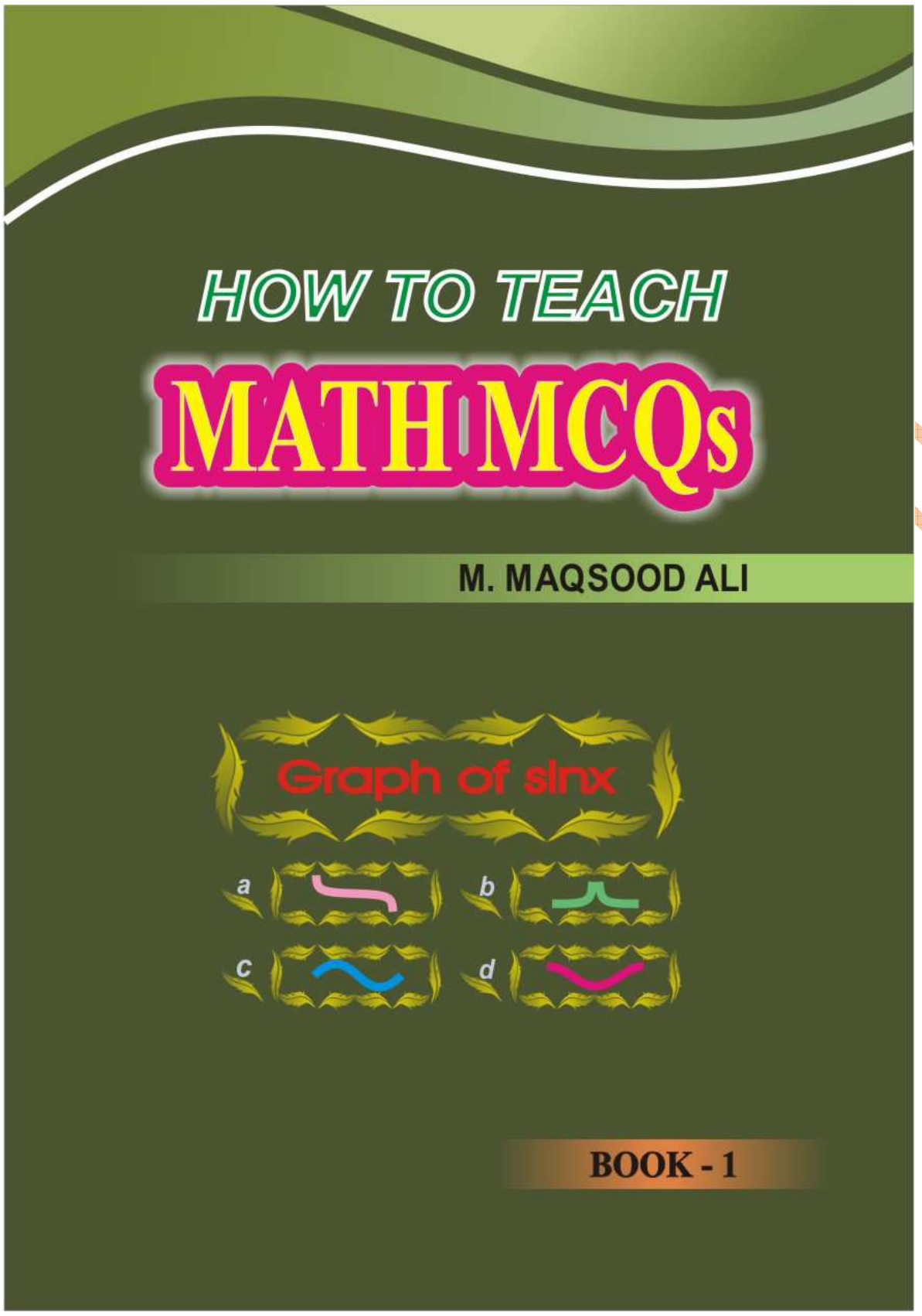

HOW TO TEACH
MATH MCQs
M. MAQSOOD ALI
Graph of sinx
a
b
c
d
BOOK - 1

Chapter 15

GRAPHS OF TRIGONOMETRIC FUNCTIONS

PERIODIC FUNCTIONS

A and B are subsets of real numbers and

$$f : A \rightarrow B.$$

The function f is said to be periodic function, if

$$f(x + p) = f(x) \quad , \quad \forall x \in A$$

where p is the smallest number and is called a period.

PERIODS OF TRIGONOMETRIC FUNCTIONS

Function	Period		Function	Period
$sinx$	2π		$sinbx$	$2\pi/\lvert b\rvert$
$cosx$	2π		$cosbx$	$2\pi/\lvert b\rvert$
$tanx$	π		$tanbx$	$\pi/\lvert b\rvert$

MCQ-1 :

What is the period of $\cos(-5x)$?

(a) 5 (b) -5 (c) $2\pi/-5$ (d) $2\pi/5$

Solution:

Period of $cos\ bx = \dfrac{2\pi}{|\,b\,|}$

$$\therefore \text{ period of } \cos(-5x) = \frac{2\pi}{|-5|} = 2\pi/5$$

The answer is (d).

MCQ-2 :

What is the period of $f(x) = 5 + 3sin4x$?

(a) $^{4\pi}/_{3}$ (b) $^{\pi}/_{2}$ (c) $^{\pi}/_{2} - 5$ (d) $^{3\pi}/_{2}$

Solution:

The period of f depends on the coefficient of $4x$,
(angle of sin) that is 4 and not on 5 and 3.

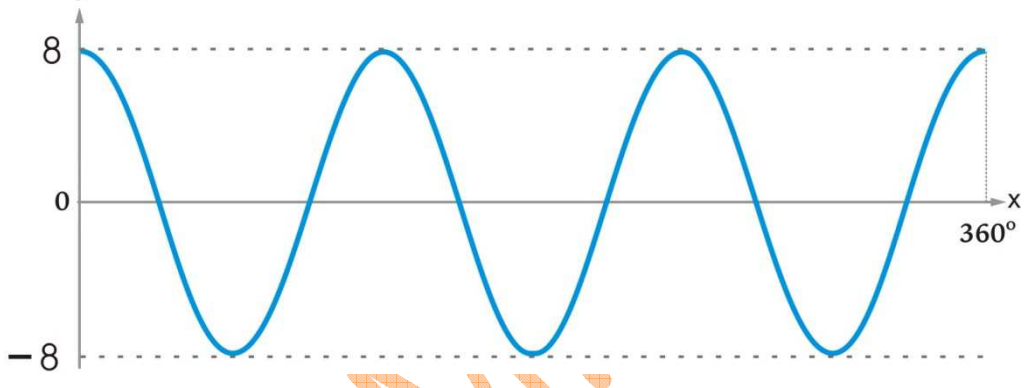
$$\text{Period of } sin\ bx = \frac{2\pi}{|\ b\ |}$$

$$\text{Period of } f(x) = {}^{2\pi}/_{4} = {}^{\pi}/_{2}$$

The answer is (b).

MCQ- 3:

The graph of a trigonometric function is given below. What is the period of the function?



(a) 45^o (b) 8^o (c) 60^o (d) 120^o

Solution:

The same shape repeats 3 times between 0^o and 360^o.

$$\text{Period} = {}^{360^o}/_{3} = 120^o$$

The answer is (d).

EXERCISE

(1) What is the period of $3cos5x$?

(a) $^{6\pi}/_{5}$ (b) $^{2\pi}/_{3}$ (c) $^{2\pi}/_{5}$ (d) $^{10\pi}/_{3}$

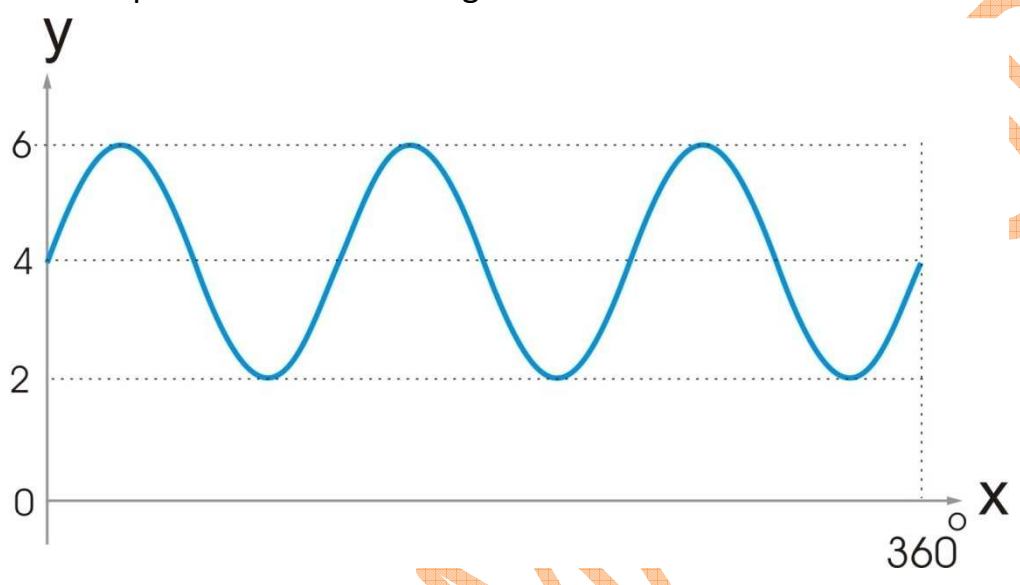
(2) What is the period of $12 - tan4x$?

(a) $^{\pi}/_{4}$ (b) $^{\pi}/_{12}$ (c) $^{\pi}/_{2}$ (d) $^{\pi}/_{2} + 12$

(3) What is the period of $6 + 2\cos(-6x)$?

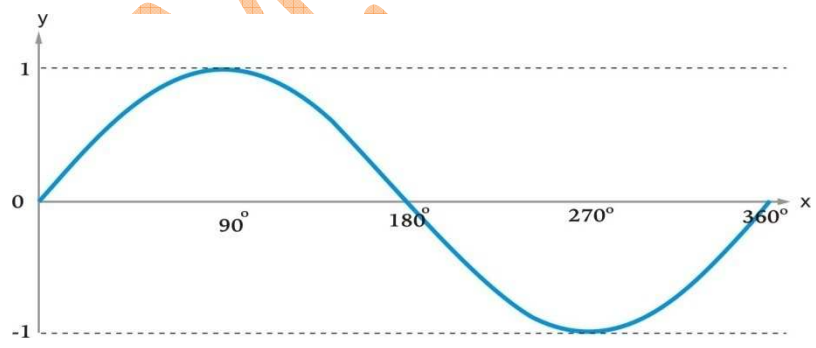
(a) $^{2\pi}/_{3}$ (b) $^{\pi}/_{3}$ (c) $^{\pi}/_{6}$ (d) $-\pi$

(4) What is the period of the following function?



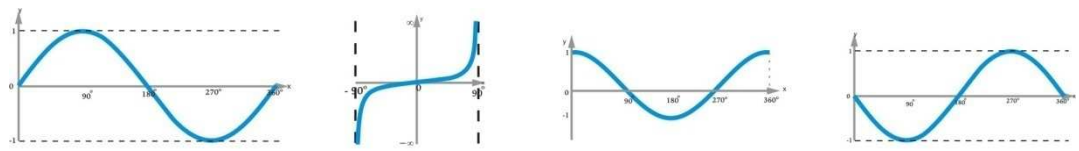
(a) 120^o (b) 240^o (c) 360^o (d) 3π

(5) Following is a graph of a trigonometric function. Identify the function.



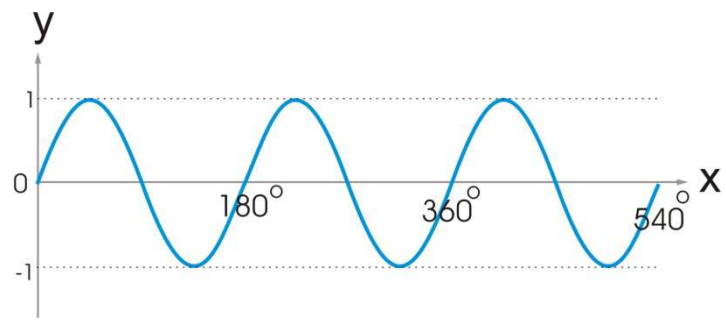
(a) $sinx$ (b) $cosx$ (c) $tanx$ (d) cos^2x

(6) Which graph of the following is the graph of ?



(a) (b) (c) (d)

(7) Following is the graph of a trigonometric function. identify the function.



(a) $cos2x$ (b) $sin2x$ (c) $sin3x$ (d) $cos3x$

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