

Homework

Section 1.6 Quick Review (page 52): (7 problems)

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Notes

Overview

- Periodic functions
- Even and odd functions
- Sketching trigonometric functions

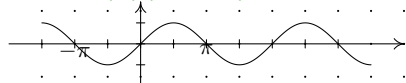
Notes

Periodic Functions

Definition (Periodic)

A function $f(x)$ is *periodic* if there exists a positive number p so that $f(x + p) = f(x)$ for every value of x . The smallest such p is the *period* of f .

Example ($f(x) = \sin x$)



Notes

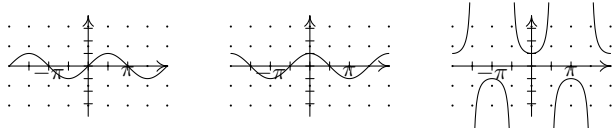
Even and odd functions

Definition (Even functions)

A function $f(x)$ is an *even* function if its graph is symmetric about the y -axis. (i.e. $f(x) = f(-x)$)

Definition (Odd functions)

A function $f(x)$ is an *odd* function if its graph is symmetric about the origin. (i.e. $f(-x) = -f(x)$)



Notes

Transformations of Trigonometric Graphs

$$y = af(b(x + c)) + d$$

Example (Sine curve or Sinusoid)

$$f(x) = A \sin\left(\frac{2\pi}{B}(x - C)\right) + D$$

Period $\frac{2\pi}{B}$

Domain $(-\infty, \infty)$

Ampl A

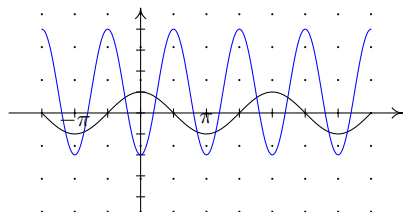
Range $[-A + D, A + D]$ - graph has been shifted vertically D units.

Shift horizontally C units.

Notes

Example ($y = 3 \cos(2x - \pi) + 1$)

- Rewrite the function as $y = 3 \cos\left(2\left(x - \frac{\pi}{2}\right)\right) + 1$
- Period is $\frac{2\pi}{B} = \frac{2\pi}{2} = \pi$
- \cos has no asymptotes, so domain is $(-\infty, \infty)$
- Graph has amplitude 3, and is shifted up 1, so range is $[-2, 4]$
- The graph has been shifted to the right $\frac{\pi}{2}$ units.



Notes

Homework

Section 1.6 (page 52): (18 problems)

1	11	13
2	period	period
3	domain	domain
4	range	range
	graph	graph
	12	14
	period	period
	domain	domain
	range	range
	graph	graph

Notes

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