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Sept 25, 2018

- Announcement:
  This is red/orange week for the metacognition assignment

- Collect * Metacognition forms and Post-Test Analysis
- Finish §3.2 - The Graph of a Function (p. 30)
- All of §3.3 - Properties of Functions (pp 31-35)

* 7 days until the Chapter 3 Test
To study, complete the Chapter 3 Test Practice Problems, AND know all eight library functions (names, equations, graphs) AND know how to solve graphing technique: transformations

p 30 Graphs:

(a) $(-\infty, -3] \cup [3, \infty)$ → Domain
$(-\infty, \infty)$ → Range

(b) $[-\pi, \pi]$ → Domain
[illegible] → Range → $[-1, 1]$

(c) $(-\infty, 2]$ → Domain
$(-\infty, \infty)$ → Range

(d) [illegible] → $[0, \infty)$ → Domain
$(-\infty, \infty)$ → Range

Obs:
Domain (left / right)
Range (up / down)

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p.31 § 3.3 - Properties of Functions

- even → symmetric to the y axis
- odd → symmetric to the origin

Problems 16, 17, 18, and 19

a) Neither

b) Odd

c) Even

p.32 #3.3.22 Determine algebraically if the function is even, odd, or neither.

(a) $f(x) = -9x^3$

$f(-x) = -9(-x)^3$

$f(x) = -9 \cdot (-x^3)$

Simplified → $f(x) = 9x^3$ → Not the same; So, not even.

Copy
Erase
Replace
Simplify

But:

$-9x^3 \cdot (-1) = 9x^3$

So, this is an odd function.

(b) $g(x) = -4x^3 + 6$

calculate $g(-x) = -4(-x)^3 + 6$

$= -4 \cdot -x^3 + 6$

$= 4x^3 + 6$

not the same, so not even

$(-4x^3 + 6)(-1) = 4x^3 - 6$

not the same, so not odd

Neither

(c) $h(x) = 7x^4 - 8x^2$

calculate $h(-x) = 7(-x)^4 - 8(-x)^2$

$h(-x) = 7x^4 - 8x^2$

the same, so it's even

OBS: Always use parenthesis to show if a function is increasing, decreasing or constant. (the intervals)

#19

increasing : $(2, 3)$

decreasing : $(-1, 1)$

constant : $(-\infty, -1) \cup (1, 2)$

- Local minimum → the lowest of all nearby points
- Local maximum → the highest of all nearby points
- Absolute minimum → the lowest of all points on a graph
- Absolute maximum → the highest of all points on a graph

#3.3.53

Local minimum: $(0,0)$, $(3,2)$

Local maximum: $(2,3)$

Absolute minimum: $(0,0)$

Absolute maximum: There is no absolute maximum

- Maxima = plural of maximum
- Minima = plural of minimum