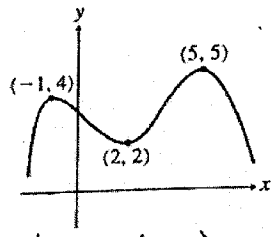
Precalculus Unit 1 Homework—Important Vocabulary Day 2

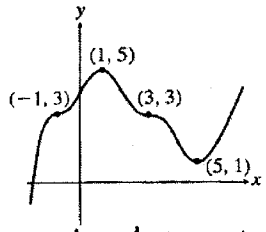
Part 1: State whether each labeled point identifies a local maximum, a local minimum, or neither. Identify intervals on which the function is decreasing or increasing.

A.



local max: $(-1,4)(5,5)$
local min: $(2,2)$
incr: $(-\infty,-1)\cup(2,5)$
decr: $(-1,2)\cup(5,\infty)$

B.



local max: $(1,5)$
local min: $(5,1)$
incr: $(-\infty,1)\cup(5,\infty)$
decr: $(1,5)$

Part 2: Determine algebraically whether each function is even, odd, or neither:

A. $f(x)=2x^4$

even

B. $g(x)=\dfrac{3}{1+x^2}$

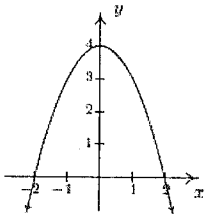
even

C. $g(x)=2x^3-3x$

odd

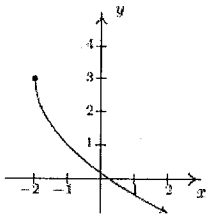
Part 3: Determine the boundedness of each function:

A.



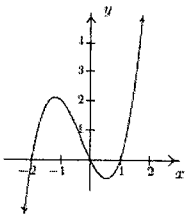
bounded above

B.



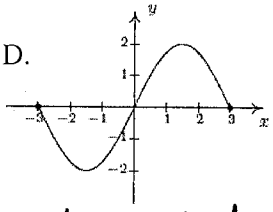
bounded above

C.



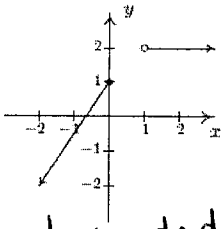
unbounded

D.



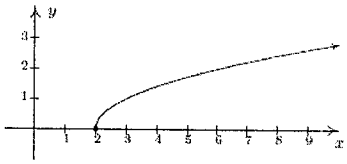
bounded

E.



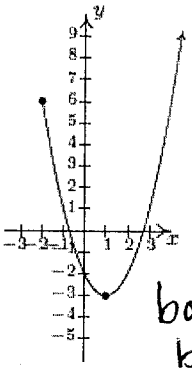
bounded above

F.



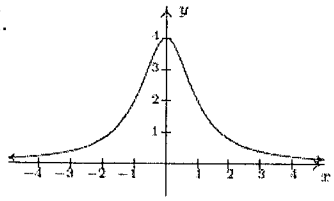
bounded below

G.



bounded below

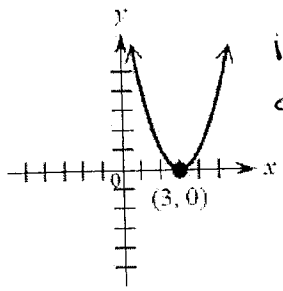
H.



bounded

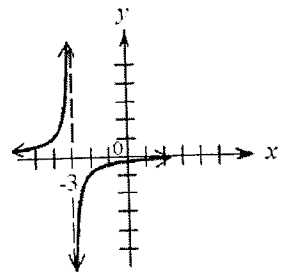
Part 4: Determine the intervals of the domain over which each function is increasing, decreasing, or constant. Then state the domain and range.

A.



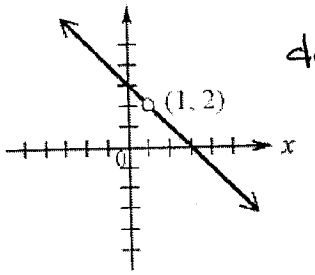
incr: $(3,\infty)$
decr: $(-\infty,3)$
D: $(-\infty,\infty)$
R: $[0,\infty)$

B.



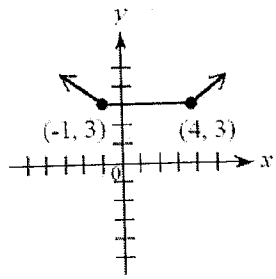
incr: $(-\infty,-3)\cup(-3,\infty)$
D: $(-\infty,-3)\cup(-3,\infty)$
R: $(-\infty,0)\cup(0,\infty)$

C.



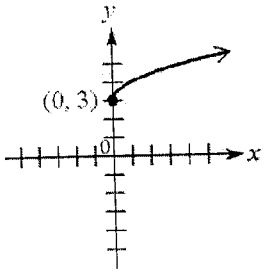
decr: $(-\infty,1)\cup(1,\infty)$
D: $(-\infty,1)\cup(1,\infty)$
R: $(-\infty,2)\cup(2,\infty)$

D.



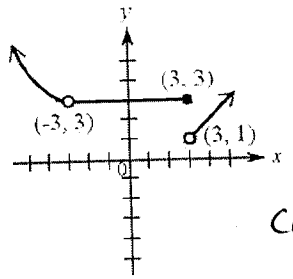
incr $(4,\infty)$
decr $(-\infty,-1)$
constant $(-1,4)$
D: $(-\infty,\infty)$
R: $[3,\infty)$

E.



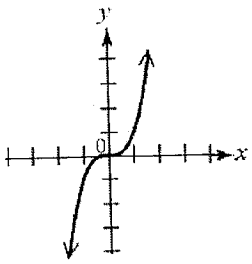
incr: $[0,\infty)$
D: $[0,\infty)$
R: $[3,\infty)$

F.



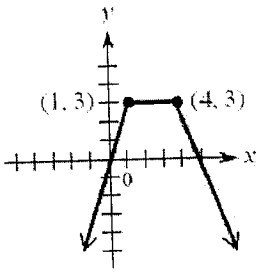
incr: $(3,\infty)$
decr: $(-\infty,-3)$
constant: $(-3,3]$
D: $(-\infty,-3)\cup(-3,\infty)$
R: $(1,\infty)$

G.



incr: $(-\infty,\infty)$
D: $(-\infty,\infty)$
R: $(-\infty,\infty)$

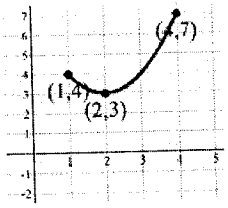
H.



incr $(-\infty,1)$
decr $(4,\infty)$
constant $(1,4)$
D: $(-\infty,\infty)$
R: $(-\infty,3]$

Part 5: Identify the relative and absolute extrema.

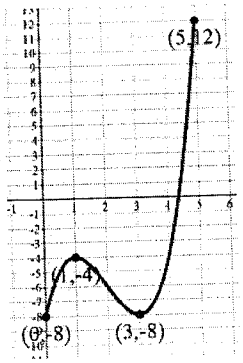
A.



values

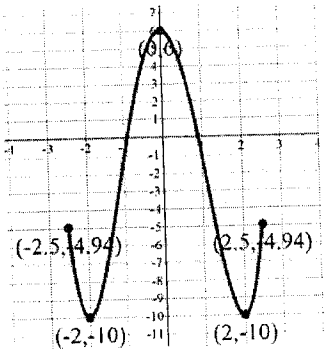
rel max 4, 7
rel. min 3
abs. min 3
abs max 7

B.



rel max -4, 12 abs.min -8
rel min -8 abs.max 12
10

C.



rel max -4.94, 6
rel min -10
abs. min -10
abs. max 6