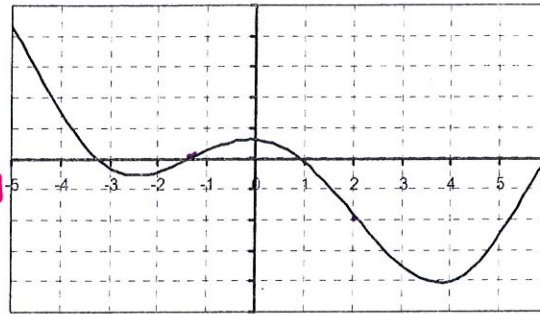


- if f' is increasing, then f is POSITIVE
- if f' is decreasing, then f' is NEGATIVE
- if f' is increasing, then f'' is POSITIVE (f concave up)
- if f' is decreasing, then f'' is NEGATIVE (f concave down)

READING GRAPHS

$f'(x)$

1. A graph of $f'(x)$ is given at the right.



A. On what interval(s) is $f(x)$ increasing?

Decreasing? Explain.

$(-5, -3.2)$ } f is increasing
when $f' > 0$
 $(-1.5, 1)$ }

$(-3.2, -1.5)$ } f is decreasing
when $f' < 0$
 $(1, 6)$ }

B. On what interval(s) is $f'(x)$ increasing? Decreasing? Explain.

$(-2.5, 0)$ } f' is increasing
when f' has positive slope
 $(4, 6)$ }

$(-5, -2.5)$ } f' is decr.
when f'
has negative
slope
 $(0, 4)$ }

C. On what interval(s) is $f(x)$ concave up? Concave down? Explain.

~~$(-5, -1.5)$~~ } f is concave up
when f' is
increasing
 $(-2.5, 0)$ }
 $(4, 6)$ }

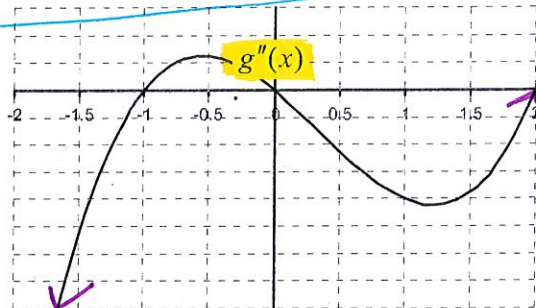
$(-5, -2.5)$ } f is concave down
when f' is
decreasing
 $(0, 4)$ }

D. On what interval(s) is $f'(x)$ concave up? Concave down? Explain.

$(-5, -1.5)$ } f' is concave up
when it looks
like up a cup
 $(2, 6)$ }

$(-1.5, 2)$ } f' is
concave down when
it looks like a
frown

2. A graph of $g''(x)$ is given at the right.



A. On what interval(s) is $g(x)$ concave up?
Concave down? Explain.

$(-1, 0)$ } g is concave up
when $g'' > 0$

$(-\infty, -1)$ } g is concave down
when $g'' < 0$
 $(0, \infty)$ }

B. On what interval(s) is $g'(x)$ increasing? Decreasing? Explain.

$(-1, 0)$ } g' is increasing
when $g'' > 0$

$(-\infty, -1)$ } g' is decreasing
when $g'' < 0$
 $(0, \infty)$ }

* note why answers are the same

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