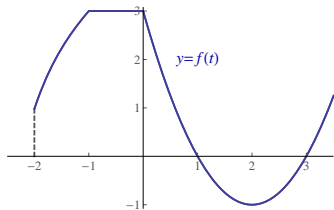


Monday, January 12

Clicker Questions

Clicker Question 1

Define $g(x) = \int_{-2}^x f(t) dt$, where $f(t)$ is the function to the right.



“Net area so far” function

Between $x = -2$ and $x = 3$: on what interval, if any, is $g(x)$ flat?
On what interval is $g(x)$ decreasing?

- A. $g(x)$ is flat for $-1 \leq x \leq 0$, and decreasing for $0 \leq x \leq 2$
- B. $g(x)$ is not flat on any interval, but decreasing for $1 \leq x \leq 3$
- C. $g(x)$ is flat for $-1 \leq x \leq 0$, and decreasing for $1 \leq x \leq 3$
- D. $g(x)$ is not flat on any interval, but decreasing for $0 \leq x \leq 2$
- E. none of the above

Clicker Question 2

Head over heels

Suppose that $g(x)$ is defined by

$$g(x) = \int_x^8 f(t) dt$$

(with the variable on the bottom rather than the top). What is $g'(x)$ then?

- A. $g'(x) = -f(x)$
- B. $g'(x) = -f(8)$
- C. $g'(x) = f(x)$
- D. $g'(x) = f(8)$
- E. none of the above

One of the properties of integrals tells us that

$$g(x) = - \int_8^x f(t) dt.$$

Clicker Question 3

Composition of functions

Define $h(x) = x^3$ and

$$g(x) = \int_{-1}^x 5\sqrt{t+2} dt.$$

What is the composition $(g \circ h)(x) = g(h(x))$?

- A. $\int_{-1}^x (5\sqrt{t+2})^3 dt$
- B. $\left(\int_{-1}^x 5\sqrt{t+2} dt \right)^3$
- C. $\int_{-1}^{x^3} 5\sqrt{t+2} dt$
- D. $\int_{-1}^x 5\sqrt{t^3+2} dt$
- E. none of the above