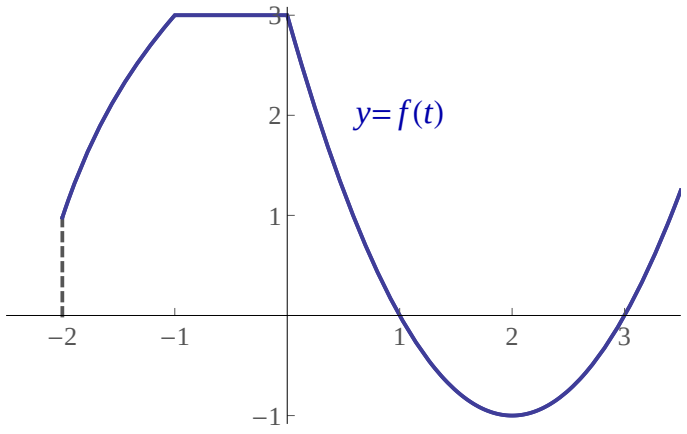
Wednesday, January 9

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 not flat on any interval, but decreasing for $0 \le x \le 2$

B. $g(x)$ is not flat on any interval, but decreasing for $1 \le x \le 3$

C. $g(x)$ is flat for $-1 \le x \le 0$, and decreasing for $0 \le x \le 2$

D. $g(x)$ is flat for $-1 \le x \le 0$, and decreasing for $1 \le x \le 3$

E. none of the above

Clicker Question 2

Recalling properties of derivatives

Suppose that $f(x)$ and $g(x)$ are differentiable functions, and $f'(x) = g'(x)$ for all x. What is the relationship between f and g?

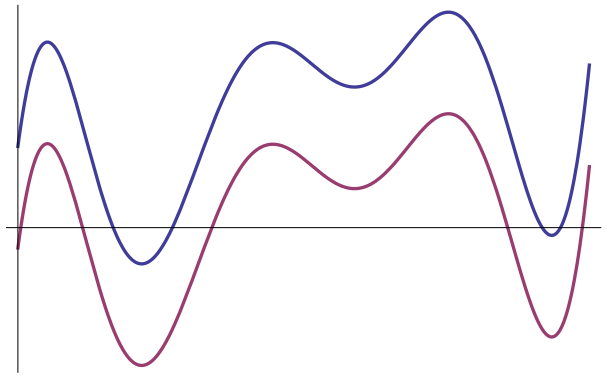
A. $f(x)$ and $g(x)$ are the same function

B. $f(x)$ and $g(x)$ add to 0

C. $f(x)$ divided by $g(x)$ is a constant

D. $f(x)$ minus $g(x)$ is a constant

E. no relationship, totally random



Clicker Question 3

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. $g'(x) = -f(8)$

B. $g'(x) = f(8)$

C. $g'(x) = -f(x)$

D. $g'(x) = f(x)$

E. none of the above

Clicker Question 4

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. $\displaystyle\int_{-1}^{x^3} 5^{\sqrt{t+2}}\, dt$

B. $\displaystyle\left(\int_{-1}^{x} 5^{\sqrt{t+2}}\, dt\right)^3$

C. $\displaystyle\int_{-1}^{x} 5^{\sqrt{t^3+2}}\, dt$

D. $\displaystyle\int_{-1}^{x} \left(5^{\sqrt{t+2}}\right)^3 dt$

E. none of the above