

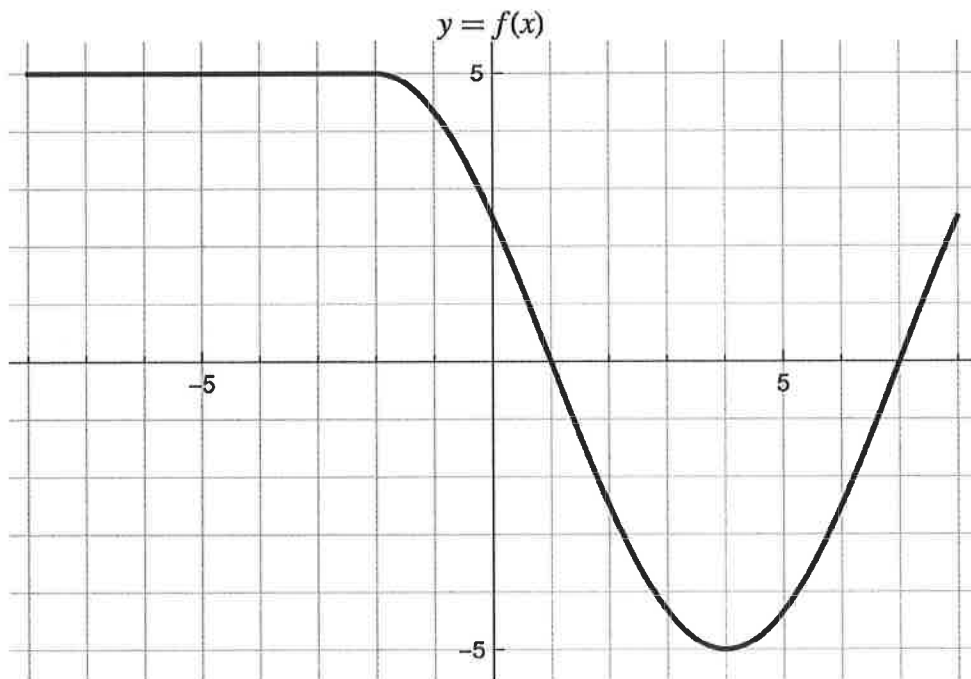
This is an open-book, open-notes quiz, and you may take as much time as you like. However, work alone; tutors, other students, internet, and so on are off limits. Write your answers on this quiz sheet and have it ready to turn in at the beginning of class on Tuesday, November 1st.

0. Sign below to indicate your pledge. If your signature is difficult to read, please print your name as well.

*I pledge that I will not give, accept, or tolerate others' use of unauthorized aid in completing this work.*

Key

(5 pt) 1. Use the graph of the function  $f$  to determine the sign (positive, negative, or zero) of each of the following:



+ a.  $f(-3)$

0 b.  $f'(-3)$

+ c.  $f(-1)$

- d.  $f'(-1)$

0 e.  $f(1)$

- f.  $f'(1)$

- g.  $f(3)$

- h.  $f'(3)$

- i.  $f(6)$

+ j.  $f'(6)$

(5 pt) 2. You're given formulas for function  $f(x)$  as well as its derivative  $f'(x)$ :

$$f(x) = \frac{5}{x+1} \quad \text{and} \quad f'(x) = \frac{-5}{(x+1)^2}$$

Write an equation for the tangent line to the graph of  $f$  at  $x = 2$ .

$$\text{@ } x=2 : y = \frac{5}{2+1} = \frac{5}{3} \rightarrow \text{point: } (2, \frac{5}{3})$$

$$f'(2) = \frac{-5}{(2+1)^2} = \frac{-5}{3^2} = -\frac{5}{9} \rightarrow \text{slope: } -\frac{5}{9}$$

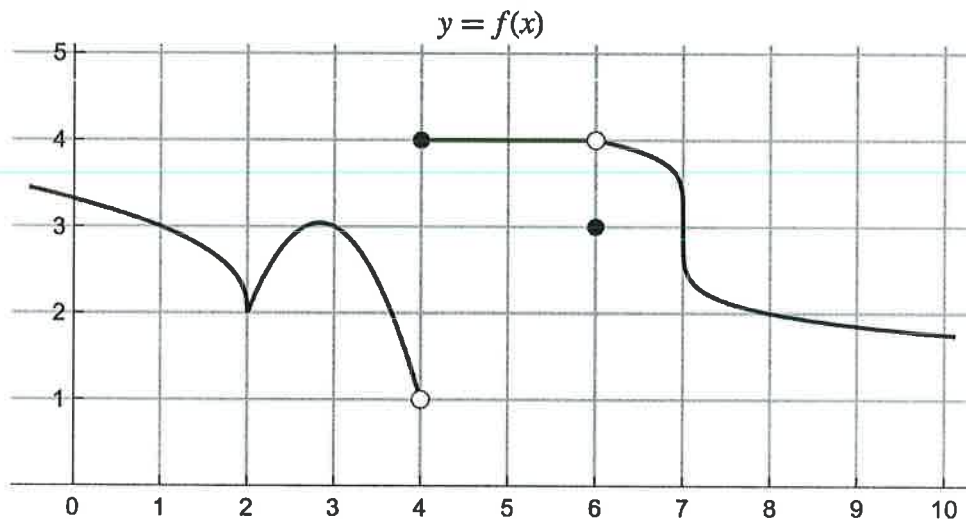
$$y - \frac{5}{3} = -\frac{5}{9}(x-2)$$

$$y = -\frac{5}{9}(x-2) + \frac{5}{3}$$

$$y = -\frac{5}{9}x + \frac{25}{9}$$

} all of these are correct

(5 pt) 3. Refer to the graph of  $f$  to answer the following.



a. List all points ( $x$ -values) visible on the graph at which  $f$  has a removable discontinuity:

$x = 6$

*Review p258-259.*

b. List all points at which  $f$  has a nonremovable discontinuity:

$x = 4$

c. List all points at which  $f$  is not differentiable:

$x = 2, 4, 6, 7$

vertical tangent line  
 L discontinuities  
 L sharp cusp.