

## AP Calculus

## Day 1 Quiz

Name \_\_\_\_\_

Period \_\_\_\_\_

1. Solve the inequality:  $15 - 3x \leq 7$ 

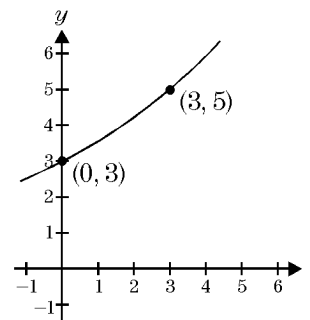
- a)  $[\frac{8}{3}, \infty)$                       b)  $(\frac{8}{3}, \infty)$                       c)  $(-\infty, \frac{8}{3}]$   
d)  $(-\infty, \frac{8}{3})$                       e) All reals except  $\frac{8}{3}$

2. Solve:  $3x^3 - 6x^2 > 0$ 

- a)  $(-\infty, 0)$  or  $(2, \infty)$                       b)  $(0, 2)$                       c)  $(-\infty, 0)$   
d)  $(2, \infty)$                       e)  $(-\infty, 2)$  or  $(2, \infty)$

3. Find the constant  $k$  so that the exponential function  $y = 3e^{kt}$  passes through the points given on the graph.

- a)  $\frac{1}{3} \ln \frac{5}{3}$                       b)  $\ln \frac{5}{9}$                       c)  $\frac{2}{3} \ln \frac{5}{9}$                       d)  $\frac{1}{3} \ln \frac{5}{9}$                       e)  $\frac{2}{3} \ln \frac{5}{3}$



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4. Choose the expression equivalent to  $\ln\left(\frac{8x^2}{3y}\right)$ .

a)  $\ln 8 - \ln 3 + 2 \ln x - \ln y$

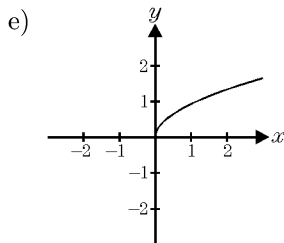
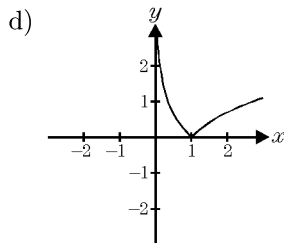
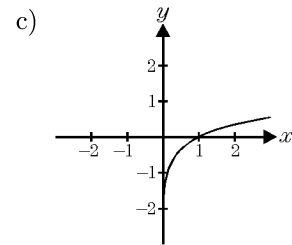
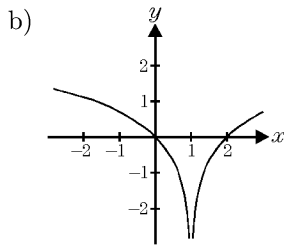
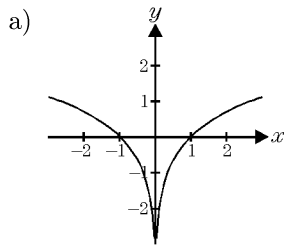
b)  $\frac{\ln 8 + \ln x^2}{\ln 3 + \ln y}$

c)  $\ln(8x^2) + \ln(3y)$

d)  $2 \ln(8x) - \ln(3y)$

e)  $\ln\left(\frac{8}{3}\right) + \ln\left(\frac{x}{y}\right)^2$

5. Which of the following is the graph of  $f(x) = \ln|x|$ ?



6. Let  $f(x) = 6x - 12$  and  $g(x) = x^2 - 4$ . Find  $\left(\frac{f}{g}\right)(x)$ .

a)  $\frac{6}{x-2}$

b)  $\frac{6(x-2)}{x+2}$

c)  $\frac{6}{(x-2)(x+2)}$

d)  $\frac{6}{x+2}$

e)  $\frac{6}{x+3}$

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7. If  $f(x) = 2 \ln x$ , where  $x \geq 0$ , and  $g(x) = \sin x$ , then  $f(g(x)) =$ 

- a)
- $\ln(\sin x)$
- b)
- $\ln(\sin x)^2$
- c)
- $2 \sin(\ln x)$
- d)
- $(\sin x)(\ln x)$
- e)
- $\ln(2 \sin x)$

8. The graph of which equation listed below has an asymptote of  $x = -1$ ?

- a)
- $y = \frac{x+1}{x^2}$
- b)
- $y = \tan x$
- c)
- $y = \frac{x^2 - 3x - 4}{x+1}$
- d)
- $y = \sin x$
- e)
- $y = \frac{4x}{x^2 - 2x - 3}$

9. If  $\frac{1}{x} + \frac{1}{2} = \frac{1}{y}$ , then  $x =$ 

- a)
- $y - 2$
- b)
- $2 - y$
- c)
- $\frac{y+2}{2y}$
- d)
- $\frac{2y}{2-y}$
- e)
- $\frac{2-y}{2y}$

10. Simplify  $\frac{32x}{(x)^{\frac{3}{5}}}$ 

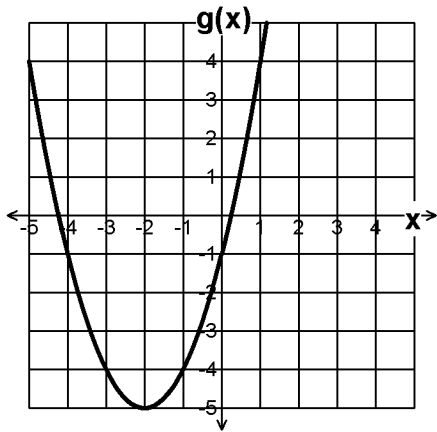
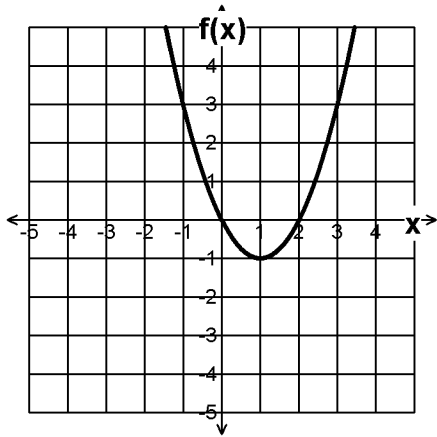
- a)
- $\sqrt[5]{16x^2}$
- b)
- $8\sqrt[5]{x^2}$
- c)
- $2\sqrt[5]{x^2}$
- d)
- $32\sqrt[5]{x^2}$
- e)
- $32x^2\sqrt[5]{x^2}$

11. Simplify  $4\left(\frac{1}{16}\right)^{\frac{3}{4}}$ 

- a)
- $\frac{1}{8}$
- b)
- $\frac{1}{4}$
- c)
- $\frac{1}{2}$
- d) 1      e) 2

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12. The figures above show the graphs of functions  $f$  and  $g$ . The function  $f$  is defined by  $f(x) = x^2 - 2x$ . If  $g(x) = f(x + h) + v$ , where  $h$  and  $v$  are constants, what is the value of  $hv$ ?

a)  $-12$                       b)  $-6$                       c)  $6$                       d)  $12$                       e) none of these

13. Let function  $f$  be defined by  $f(x) = 4(3 - x^3)$ . When  $f(a) = -20$ , what is the value of  $5 - 2a$ ?

a)  $-2$                       b)  $-1$                       c)  $0$                       d)  $1$                       e)  $2$

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- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.