

AP Calculus  
Warm Up Day 74

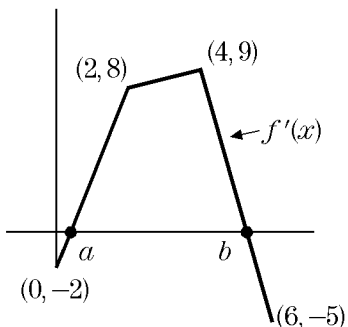
Name \_\_\_\_\_

Date \_\_\_\_\_

1. The graph shows the velocity of a ladybug that is moving along a straight line for  $t$  on  $[0, 6]$ .

What is the maximum speed of the object?

- a) 6 units/sec
- b) 4 units/sec
- c) 9 units/sec
- d) 5 units/sec
- e) 8 units/sec



2. A point moves on the graph of  $y = x^3 - x$  so that, when the point is at  $(x, x^3 - x)$ , the rate of change of  $x$  with respect to time is  $\frac{1}{x}$ . Find the rate of change of  $y$  with respect to time when  $y = 6$ .

- a)  $\frac{1}{6}$
- b)  $\frac{7}{3}$
- c) 3
- d)  $\frac{11}{3}$
- e)  $\frac{11}{2}$

3. A ladder 15 ft in length leans against a vertical wall, with the bottom of the ladder 5 ft from the wall on a horizontal floor. If at that time the bottom end of the ladder is being pulled away at the rate of 2 ft/s, at what rate does the top of the ladder slip down the wall?

- a)  $\frac{\sqrt{2}}{2}$  ft/s
- b) 1 ft/s
- c) 3 ft/s
- d)  $\frac{2\sqrt{5}}{3}$  ft/s
- e) 2 ft/s

4. If  $f(x) = x^3 + 3x^2 + 2x + 7$ , then the equation of the tangent at the point of inflection is

- a)  $x - y = 4$
- b)  $x + y = 4$
- c)  $y - 4 = 0$
- d)  $x - y = -4$
- e)  $y + 4 = 0$

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1.  
Answer:        c  
CodePath:    EAS.APC.E.I.3
2.  
Answer:        e  
CodePath:    EAS.APC.E.J.13
3.  
Answer:        a  
CodePath:    EAS.APC.E.J.37
4.  
Answer:        b  
CodePath:    EAS.APC.E.C.56