EMCF 21

Log into CourseWare at http://www.casa.uh.edu
and access the answer sheet by clicking on the EMCF tab.

NOTE: On all problems, choice F is "None of the above".

1. $x = t^2,\ y = 3t$ Find dy/dx.

   A. $\frac{3}{2t}$

   B. $\frac{2t}{3}$

   C. $6t$

   D. $\frac{3t}{2}$

   E. t

2. If $r = 4\sin\theta$, the tangent to the curve at the origin is the line $\theta = 0$.

   A. True B. False

3. $x = \sin t,\quad y = \cos t$ Find dy/dx.

   A. $-\sin t$

   B. $\cot t$

   C. $\tan t$

   D. $\cos t$

   E. $-\tan t$

4. $x = e^t,\ y = t$ Find dy/dx.

   A. e^{-t}

   B. e^t

   C. $\frac{t}{e^t}$

   D. te^t

   E. $-e^t$

5. Find the value of t for which the tangent to $x = t^4$, $y = 3t^2 - 2t$ is horizontal.

   A. 1/3
   B. 0
   C. 2/3
   D. 8
   E. 1

6. $x = 8t$, $y = 11t$ Find dy/dx.

   A. 11/8 B. 8/11 C. 88 D. 19 E. 11

7. Give the point of intersection of the curves (t + 3, –2t + 1) and (–3t + 1, 3t – 4).

   A. (7/2, 0)
   B. (10, 10)
   C. (10, –13)
   D. (4, –1)

Think on these:

8. Sketch the curves (t + 3, –2t + 1) and (sin(t), cos(t)). The curves

   A. do not intersect
   B. intersect exactly once
   C. intersect exactly twice
   D. intersect three times

9. Sketch the curves (t^2, –2t + 1) and (sin(t), cos(t)). The curves

   A. do not intersect
   B. intersect exactly once
   C. intersect exactly twice
   D. intersect three times

10. Write the equation for the line tangent to the curve defined by $F(t) = (t^2 + 1, 2^t)$ at the point where y=4.

A. $y - 4 = ln\,2(x - 2)$

B. $y - 4 = 4\,ln\,2(x - 2)$

C. $y - 4 = 4(x - 5)$

D. $y - 4 = ln\,2(x - 5)$

E. $y - 4 = 4\,ln\,2(x - 5)$