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Advanced Mathematics 1 (Examination Office)

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**Quiz Chapter 3**

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Question**1**

Marks: 1

Find *f*  
  
[f''(x)=12x+24x^2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f''(x)=12x+24x%5e2)  
  
Select the correct answer.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [2x^3+6x^4+Cx+D](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?2x%5e3+6x%5e4+Cx+D) |  |
|  | b. [2x^3+2x^4+Cx+D](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?2x%5e3+2x%5e4+Cx+D) |  |
|  | c. [2x^3+x^4+Cx+D](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?2x%5e3+x%5e4+Cx+D) |  |
|  | d. [4x^3+8x^4+Cx+D](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?4x%5e3+8x%5e4+Cx+D) |  |
|  | e. [x^3+4x^4+Cx+D](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x%5e3+4x%5e4+Cx+D) |  |

Question**2**

Marks: 1

Compute the maximum product for two positive numbers with the property that the sum of the first plus three times the second is 3000.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 750,000 |  |
|  | b. 15,000 |  |
|  | c. 25,000 |  |
|  | d. none of these |  |
|  | e. 30,000 |  |

Question**3**

Marks: 1

A particle moves on a straight line with velocity function [v(t)=\sin\omega t\cos^3\omega t](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?v(t)=\sin\omega+t\cos%5e3\omega+t), where [\omega](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\omega) is a real constant. Find its position function *s* = *f*(*t*) of *f*(0) = 0.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [(1-\cos^4\omega t)/(4\omega)](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1-\cos%5e4\omega+t)/(4\omega)) |  |
|  | b. [(1+\sin^4\omega t)/(4\omega)](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1+\sin%5e4\omega+t)/(4\omega)) |  |
|  | c. [(1+\cos^4\omega t)/(4\omega)](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1+\cos%5e4\omega+t)/(4\omega)) |  |
|  | d. [(1-\sin^4\omega t)/(4\omega)](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1-\sin%5e4\omega+t)/(4\omega)) |  |

Question**4**

Marks: 1

Find the value or values of c that satisfy the equation in the conclusion of the Mean Value Theorem for the function f(x) = ln (x - 2), and interval [3, 6]. Round to the nearest thousandth.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 4.164 |  |
|  | b. 5.164 |  |
|  | c. ±4.164 |  |
|  | d. 4.731 |  |

Question**5**

Marks: 1

Find two positive numbers whose product is 196 and whose sum is a minimum.   
  
Select the correct answer.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 6, 24 |  |
|  | b. 4, 49 |  |
|  | c. 14, 14 |  |
|  | d. none of these |  |
|  | e. 2, 98 |  |

Question**6**

Marks: 1

Find the absolute extreme values of the function on the given interval.  
  
[f(x)=x^3-6x^2+9x+1, \, [2, 4]](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f(x)=x%5e3-6x%5e2+9x+1,+\,+%5b2,+4%5d)  
Select the correct answer.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. Max (2,4), Min (3,1) |  |
|  | b. Max (4, 5), Min: (3, 1) |  |
|  | c. Max (3,5), Min (4,1) |  |
|  | d. Max (3,4), Min (2,1) |  |
|  | e. none of these |  |

 

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