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Advanced Mathematics 1 (Examination Office)

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**Quiz Chapter 4 (B1-SP2011)**

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Question**1**

Marks: 1

Determine a region whose area is equal to

[\lim_{n\to \infty}\sum_{i=1}^n\frac{\pi}{3n}\tan\frac{i\pi}{3n}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Clim_%7Bn%5Cto+%5Cinfty%7D%5Csum_%7Bi%3D1%7D%5En%5Cfrac%7B%5Cpi%7D%7B3n%7D%5Ctan%5Cfrac%7Bi%5Cpi%7D%7B3n%7D)

.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [y=\tan x,\, 0\leq x\leq \pi/5](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Ctan+x%2C%5C%2C+0%5Cleq+x%5Cleq+%5Cpi%2F5) |  |
|  | b. [y=\tan x,\, 0\leq x\leq \pi/3](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Ctan+x%2C%5C%2C+0%5Cleq+x%5Cleq+%5Cpi%2F3) |  |
|  | c. [y=\tan x,\, 0\leq x\leq \pi/8](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Ctan+x%2C%5C%2C+0%5Cleq+x%5Cleq+%5Cpi%2F8) |  |
|  | d. [y=\tan x,\, 0\leq x\leq \pi/13](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Ctan+x%2C%5C%2C+0%5Cleq+x%5Cleq+%5Cpi%2F13) |  |

Question**2**

Marks: 1

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

[g(x)=\int_7^{x^2}9\sqrt{1+t^8}dt](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?g%28x%29%3D%5Cint_7%5E%7Bx%5E2%7D9%5Csqrt%7B1%2Bt%5E8%7Ddt)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [18\sqrt{1+x^{16}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?18%5Csqrt%7B1%2Bx%5E%7B16%7D%7D) |  |
|  | b. [18x\sqrt{1+x^{16}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?18x%5Csqrt%7B1%2Bx%5E%7B16%7D%7D) |  |
|  | c. [9x\sqrt{1+x^{16}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?9x%5Csqrt%7B1%2Bx%5E%7B16%7D%7D) |  |
|  | d. [9\sqrt{1+x^{16}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?9%5Csqrt%7B1%2Bx%5E%7B16%7D%7D) |  |

Question**3**

Marks: 1

Evaluate the indefinite integral.

[\int 6x(x^2+4)^4\, dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Cint+6x%28x%5E2%2B4%29%5E4%5C%2C+dx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [(4/5)(x^2+4)^5+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%284%2F5%29%28x%5E2%2B4%29%5E5%2BC) |  |
|  | b. [(3/5)(x^2+4)^5+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%283%2F5%29%28x%5E2%2B4%29%5E5%2BC) |  |
|  | c. [(1/5)(x^2+4)^5+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%281%2F5%29%28x%5E2%2B4%29%5E5%2BC) |  |
|  | d. [(2/5)(x^2+4)^5+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%282%2F5%29%28x%5E2%2B4%29%5E5%2BC) |  |

Question**4**

Marks: 1

Evaluate the indefinite integral.

[\int\sec^2 x\tan x\, dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Cint%5Csec%5E2+x%5Ctan+x%5C%2C+dx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [(1/2)\sec^2 x+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%281%2F2%29%5Csec%5E2+x%2BC) |  |
|  | b. [2\sec^2 x+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?2%5Csec%5E2+x%2BC) |  |
|  | c. None of these |  |
|  | d. [\tan^2 x+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Ctan%5E2+x%2BC) |  |

Question**5**

Marks: 1

Evaluate the integral.

[\int_{-2}^5|4x-x^2|\, dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Cint_%7B-2%7D%5E5%7C4x-x%5E2%7C%5C%2C+dx)

The choices are rounded to the nearest hundredth.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 102.33 |  |
|  | b.    23.67 |  |
|  | c.   209.00 |  |
|  | d. 123.67 |  |

Question**6**

Marks: 1

Use the Midpoint Rule with *n* = 5 to approximate the integral.

[\int_0^{10}2\sin\sqrt{q}dq](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Cint_0%5E%7B10%7D2%5Csin%5Csqrt%7Bq%7Ddq)

The choices are rounded to 3 decimal places.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 5.781 |  |
|  | b. 9.998 |  |
|  | c. 12.929 |  |
|  | d. 4.781 |  |

 

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