**Advanced Mathematics 1 (Examination Office)**

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**Quiz Chapter 7**

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Question 1

Marks: 1

Solve the differential equation.

[\frac{dy}{dx}=\frac{e^{2x}}{6y^5}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\frac%7bdy%7d%7bdx%7d=\frac%7be%5e%7b2x%7d%7d%7b6y%5e5%7d)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [y=\pm\sqrt[6]{e^{2x}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=\pm\sqrt%5b6%5d%7be%5e%7b2x%7d%7d) |  |
|  | b. [y=\pm\sqrt[6]{e^{2x}+C}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=\pm\sqrt%5b6%5d%7be%5e%7b2x%7d+C%7d) |  |
|  | c. [y=\pm\sqrt[6]{e^{2x}/2+C}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=\pm\sqrt%5b6%5d%7be%5e%7b2x%7d/2+C%7d) |  |
|  | d. [y=\pm\sqrt[6]{e^{2x}/2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=\pm\sqrt%5b6%5d%7be%5e%7b2x%7d/2%7d) |  |

Question 2

Marks: 1

Find the area of the region bounded by the curves [y=x^2-2x](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=x%5e2-2x)and [y=x+4](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=x+4)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 133/7 |  |
|  | b. 129/8 |  |
|  | c. 125/6 |  |
|  | d. 137/6 |  |

Question 3

Marks: 1

Solve the initial-value problem.

[\frac{dx}{dt}+2tx=x,\, x(0)=5](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\frac%7bdx%7d%7bdt%7d+2tx=x,\,+x(0)=5)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [x(t)=5e^{t+t^2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x(t)=5e%5e%7bt+t%5e2%7d) |  |
|  | b. [x(t)=-5e^{t+t^2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x(t)=-5e%5e%7bt+t%5e2%7d) |  |
|  | c. [x(t)=5e^{t-t^2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x(t)=5e%5e%7bt-t%5e2%7d) |  |
|  | d. [x(t)=-5e^{t-t^2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x(t)=-5e%5e%7bt-t%5e2%7d) |  |

Question 4

Marks: 1

Find the area of the region bounded by the curves [y=\cos x,\, y=\sin 2x,\, x=0,\, x=\pi/2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=\cos+x,\,+y=\sin+2x,\,+x=0,\,+x=\pi/2)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 0.7 |  |
|  | b. 0.5 |  |
|  | c. 0.6 |  |
|  | d. 0.8 |  |

Question 5

Marks: 1

Find the area of the region bounded by the curves.  
[x=4-y^2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x=4-y%5e2)and [x=y^2-2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?x=y%5e2-2)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 12.53 |  |
|  | b. 13.86 |  |
|  | c. 11.47 |  |
|  | d. 11.86 |  |

Question 6

Marks: 1

Find the volume of the solid obtained by rotating the region bounded by the given curves about the specified axis.  
  
[y=2x,\, y=x^2; ](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y=2x,\,+y=x%5e2;+)about the x-axis.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [67\pi/15](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?67\pi/15) |  |
|  | b. [64\pi/15](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?64\pi/15) |  |
|  | c. [61\pi/16](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?61\pi/16) |  |
|  | d. [63\pi/16](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?63\pi/16) |  |





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