**1**

Marks: 1

Find the arc length of the curve [y=\frac{2}{3} x^3 +\frac{1}{8x},\, 1\le x\le 2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Cfrac%7B2%7D%7B3%7D+x%5E3+%2B%5Cfrac%7B1%7D%7B8x%7D%2C%5C%2C+1%5Cle+x%5Cle+2). Round your answer to 4 decimal places.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 2.8206 |  |
|  | b. 26.3046 |  |
|  | c. 4.7292 |  |
|  | d. None of the other choices is correct |  |
|  | e. 4.8487 |  |

Question**2**

Marks: 1

Find the area of the region bounded by the given curves.  
  
[y=\cos x,\, y=\cos^3 x,\, x=0,\, x=\pi/2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Ccos+x%2C%5C%2C+y%3D%5Ccos%5E3+x%2C%5C%2C+x%3D0%2C%5C%2C+x%3D%5Cpi%2F2)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 4/3 |  |
|  | b. 1/3 |  |
|  | c. 1 |  |
|  | d. 2/3 |  |

Question**3**

Marks: 1

Solve the differential equation.

[\frac{dy}{dx}=\frac{e^{2x}}{6y^5}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?%5Cfrac%7Bdy%7D%7Bdx%7D%3D%5Cfrac%7Be%5E%7B2x%7D%7D%7B6y%5E5%7D)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [y=\pm\sqrt[6]{e^{2x}/2+C}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Cpm%5Csqrt%5B6%5D%7Be%5E%7B2x%7D%2F2%2BC%7D) |  |
|  | b. [y=\pm\sqrt[6]{e^{2x}+C}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Cpm%5Csqrt%5B6%5D%7Be%5E%7B2x%7D%2BC%7D) |  |
|  | c. [y=\pm\sqrt[6]{e^{2x}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Cpm%5Csqrt%5B6%5D%7Be%5E%7B2x%7D%7D) |  |
|  | d. [y=\pm\sqrt[6]{e^{2x}/2}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?y%3D%5Cpm%5Csqrt%5B6%5D%7Be%5E%7B2x%7D%2F2%7D) |  |

Question**4**

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%3D2x%2C%5C%2C+y%3Dx%5E2%3B+) about the x-axis.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [67\pi/15](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?67%5Cpi%2F15) |  |
|  | b. [63\pi/16](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?63%5Cpi%2F16) |  |
|  | c. [61\pi/16](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?61%5Cpi%2F16) |  |
|  | d. [64\pi/15](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?64%5Cpi%2F15) |  |

Question**5**

Marks: 1

Find the area of the region bounded by the hyperbola [9x^2-4y^2=36](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?9x%5E2-4y%5E2%3D36) and the line *x* = 4.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [2\sqrt{3}-\ln(2+\sqrt{3})](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?2%5Csqrt%7B3%7D-%5Cln%282%2B%5Csqrt%7B3%7D%29) |  |
|  | b. None of these |  |
|  | c. [12\sqrt{3}-4\ln(2+\sqrt{3})](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?12%5Csqrt%7B3%7D-4%5Cln%282%2B%5Csqrt%7B3%7D%29) |  |
|  | d. [6(2\sqrt{3}-\ln(2+\sqrt{3}))](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?6%282%5Csqrt%7B3%7D-%5Cln%282%2B%5Csqrt%7B3%7D%29%29) |  |