1

Marks: 1

Evaluate the integral.

[\int\frac{\cos x}{4+\sin^2 x}dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\int\frac%7b\cos+x%7d%7b4+\sin%5e2+x%7ddx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [(1/2)\tan^{-1}(\frac{\sin x}{2})+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1/2)\tan%5e%7b-1%7d(\frac%7b\sin+x%7d%7b2%7d)+C) |  |
|  | b. None of these |  |
|  | c. [(1/2)\tan^{-1}(\sin x)+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(1/2)\tan%5e%7b-1%7d(\sin+x)+C) |  |
|  | d. [\tan^{-1}(\frac{\sin x}{2})+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\tan%5e%7b-1%7d(\frac%7b\sin+x%7d%7b2%7d)+C) |  |

Question 2

Marks: 1

Evaluate  
  
[\displaystyle\int_{-\infty}^0\frac{6}{10x-7}dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\displaystyle\int_%7b-\infty%7d%5e0\frac%7b6%7d%7b10x-7%7ddx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. ln(3/5) |  |
|  | b. 3/5 |  |
|  | c. 0 |  |
|  | d. divergent |  |

Question 3

Marks: 1

Evaluate the integral.

[\int\sin 8x\cos 3x\, dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\int\sin+8x\cos+3x\,+dx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. (1/10) sin 5x+(1/22) sin 11x+C |  |
|  | b. (1/10) sin 5x-(1/22) sin 11x+C |  |
|  | c. -(1/22) cos 11x-(1/22) sin 11x+C |  |
|  | d. -(1/22) cos 11x-(1/10) cos 5x+C |  |

Question 4

Marks: 1

Determine whether the improper integral converges or diverges.[\displaystyle \int_{-8}^9\frac{dx}{(x+1)^{1/3}}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\displaystyle+\int_%7b-8%7d%5e9\frac%7bdx%7d%7b(x+1)%5e%7b1/3%7d%7d)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. Converges |  |
|  | b. Diverges |  |

Question 5

Marks: 1

Use Simpson's Rule with n = 4 steps to estimate the integral.[\int_0^2 xdx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\int_0%5e2+xdx)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 2 |  |
|  | b. 1 |  |
|  | c. 5/3 |  |
|  | d. 4 |  |

Question 6

Marks: 1

Find [\displaystyle \int\frac{2}{x^2+3x-4}dx](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\displaystyle+\int\frac%7b2%7d%7bx%5e2+3x-4%7ddx).

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. None of the other choices is correct |  |
|  | b. [-(2/5)\ln\left|\frac{x+4}{x-1}\right|+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?-(2/5)\ln\left|\frac%7bx+4%7d%7bx-1%7d\right|+C) |  |
|  | c. [(2/5)\ln\left|\frac{x-4}{x+1}\right|+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(2/5)\ln\left|\frac%7bx-4%7d%7bx+1%7d\right|+C) |  |
|  | d. [-(2/5)\ln\left|\frac{x-4}{x+1}\right|+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?-(2/5)\ln\left|\frac%7bx-4%7d%7bx+1%7d\right|+C) |  |
|  | e. [(2/5)\ln\left|\frac{x+4}{x-1}\right|+C](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?(2/5)\ln\left|\frac%7bx+4%7d%7bx-1%7d\right|+C) |  |