**Chapter test 11**

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**JavaScript must be enabled to continue!**

Question 1

Marks: 1

At what point is the following function a local minimum?   
  
[f(x,y)=8x^2+9y^2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f(x,y)=8x%5e2+9y%5e2)  
  
Select the correct answer.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. (9, 0) |  |
|  | b. (8, 9) |  |
|  | c. (0, 0) |  |
|  | d. (-8, 0) |  |
|  | e. (8, 0) |  |

Question 2

Marks: 1

At what points is the given function continuous?f(x, y) = [\frac{xy}{x+y}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\frac%7bxy%7d%7bx+y%7d)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. All (x, y) such that x ≠  y |  |
|  | b. All (x, y) |  |
|  | c. All (x, y) such that x ≠ - y |  |
|  | d. All (x, y) ≠  (0, 0) |  |

Question 3

Marks: 1

Find all the first order partial derivatives for the following function.f(x, y) = 6x - 7y2 - 1

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. [\partial f/\partial x =6x; \partial f/\partial y = -14y](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\partial+f/\partial+x+=6x;+\partial+f/\partial+y+=+-14y) |  |
|  | b. [\partial f/\partial x =6; \partial f/\partial y = -14y](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\partial+f/\partial+x+=6;+\partial+f/\partial+y+=+-14y) |  |
|  | c. [\partial f/\partial x = -14y; \partial f/\partial y = 6](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\partial+f/\partial+x+=+-14y;+\partial+f/\partial+y+=+6) |  |
|  | d. [\partial f/\partial x =5; \partial f/\partial y = -14y-1](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\partial+f/\partial+x+=5;+\partial+f/\partial+y+=+-14y-1) |  |

Question 4

Marks: 1

Find the dimensions of a rectangular box of maximum volume such that the sum of the lengths of its 12 edges is 96.  
  
Select the correct answer

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 32, 32, 32 |  |
|  | b. 4, 8, 16 |  |
|  | c. 8, 96, 8 |  |
|  | d. 8, 8, 8 |  |

Question 5

Marks: 1

Find [f_{xxx}](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f_%7bxxx%7d).   
  
[f(x,y)=x^2y^4-3x^4y](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f(x,y)=x%5e2y%5e4-3x%5e4y)  
  
Select the correct answer.

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 36xy |  |
|  | b. -36xy |  |
|  | c. [36xy^2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?36xy%5e2) |  |
|  | d. 72xy |  |
|  | e. -72xy |  |

Question 6

Marks: 1

Find the directional derivative of *f* at the given point in the direction indicated by the angle [\theta](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?\theta).   
  
[f(x,y)=\sqrt{6x-5y}, (5,1), \theta=-\pi/6](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?f(x,y)=\sqrt%7b6x-5y%7d,+(5,1),+\theta=-\pi/6)

Choose one answer.

|  |  |  |
| --- | --- | --- |
|  | a. 0.77 |  |
|  | b. 0.42 |  |
|  | c. 0.11 |  |
|  | d. 0.56 |  |



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