Assignment 3

The due date for submitting this assignment has passed.

Due on 2021-02-10, 23:59 IST.

As per our records you have not submitted this assignment.

1) If a and b are positive integers then the command `xgcd(a,b)` outputs to *1 point*

- only g.c.d of a and b
- three integers d, x, y such that $d = xa + yb$
- step by step solution for g.c.d. of a and b using Euclidean algorithm
- g.c.d. of $a + b$ and $a - b$

No, the answer is incorrect.
Score: 0
Accepted Answers:
three integers d, x, y such that $d = xa + yb$

2) By looping over all divisors of 500 in SageMath, the sum of squares of all divisors of 500 is *1 point*

- 341796
- 500000
- 385696
- 300000

No, the answer is incorrect.
Score: 0
Accepted Answers:
341796

3) The 13^{th} decimal place in $\pi + e$ when evaluated in SageMath is *1 point*

- 1
- 2
- 8
- 6

No, the answer is incorrect.
Score: 0
Accepted Answers:
8

4) Pick the true statement for `solve` command in SageMath. *1 point*

- it can be used only to solve linear system of equations
- it can be used only to solve non-linear system of equations
- it can be used to solve any linear and non-linear system of equations
- it can't be used to solve equations involving more than 10 unknowns

No, the answer is incorrect.
Score: 0
Accepted Answers:
it can be used to solve any linear and non-linear system of equations

5) Which of the following optional argument can be included with `solve` command in SageMath for displaying solutions of system of equation(s) as a dictionary? *1 point*

- `solutionset=false`
- `solution_dict=false`
- `solution_dict=True`
- `solutionset=true`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`solution_dict=True`

6) The default interval in which the graph of 2D function gets plotted using `f.plot()` in SageMath is *1 point*

- [0, 1]
- [−1, 1]
- [−10, 10]
- [−100, 100]

No, the answer is incorrect.
Score: 0
Accepted Answers:
[−1, 1]

7) Which command can be used for avoiding the plotting of vertical lines in 2D graphs of piecewise functions? *1 point*

- `except`
- `remove`
- `hide`
- `exclude`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`exclude`

8) Select the invalid command with reference to 2D plots in SageMath? *0 points*

- `implicit_plot`
- `variable_plot`
- `variable_plot`
- `region_plot`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`variable_plot`

9) Which of the following command can be included in `revolution_plot3d` command to obtain the surface of revolution around $X-$ axis of the 2D curve? *1 point*

- `revolution_axis='x'`
- `surface_axis='x'`
- `plot_axis='x'`
- `parallel_axis='x'`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`parallel_axis='x'`

10) Which of the following option specifies the number of contours in `plot_contour` command ? *1 point*

- `number_contours=30`
- `contours_number=30`
- `contours_number=30`
- `contours=30`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`contours=30`

11) Define the recursive sequence *1 point*

$$a_1 = 1$$
$$a_{n+1} = a_n + \frac{1}{a_n} \text{ for } n = 1, 2, 3, \ldots$$

by using appropriate commands in SageMath. Then

- a_{15} = 5.57555
- a_{50} = 3.57555
- a_9 = 2.57555
- a_8 = 5.57555

No, the answer is incorrect.
Score: 0
Accepted Answers:
a_{15} = 5.57555

12) By defining an sequence in SageMath appropriately, the approximate value of *1 point*

$$\lim_{n\to\infty}\left(\frac{1}{n+1} + \frac{1}{n+2} + \cdots + \frac{1}{2n}\right)$$

is

- undefined
- 0
- 0.393147
- 0.693147

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.693147

13) Declare a function $f(x, y) = (x + y)e^{x^2-y^2}$ in SageMath and define `f1=f.implicit_derivative(x,y)` and `f2=f.implicit_derivative(y,x)`. Then *1 point*

- $f1 = f2$
- $f1 \neq f2$
- $f1$ is defined but $f2$ is not defined
- $f2$ is defined but $f1$ is not defined

No, the answer is incorrect.
Score: 0
Accepted Answers:
$f1 \neq f2$

14) The one of the value of c in $[0, 8]$ such that $f'(c) = \frac{f(8) - f(0)}{8}$ for the function $f(x) = x - \cos(x)$ is *1 point*

- 0
- 3.141681
- 0.343681
- 0.143681

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.143681

15) When Taylors expansion of the function $f(x) = x\sin(3x + 2)$ is determined at point 0 with 10^{th} degree polynomial, the coefficient of x^3 is *1 point*

- 0
- 1
- $\frac{243}{4480}\cos(2)$
- $\frac{729}{4480}\sin(2)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{729}{4480}\sin(2)$