Assignment 6

The due date for submitting this assignment has passed.

Due on 2021-03-03, 23:59 IST.

As per our records you have not submitted this assignment.

1) The area of the region between the graphs of the curves $y = x$ and $y = \frac{x^3}{4}, x \in [-1, 2]$ is *1 point*

- 1
- 2
- $\frac{23}{16}$
- $\frac{23}{8}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{23}{16}$

2) The area of the region above the x-axis enclosed by the curves $x = 12y^2 - 12y^3$ and $x = 2y^2 - 2y$ is *1 point*

- 1
- $\frac{1}{2}$
- $\frac{2}{3}$
- $\frac{4}{3}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{4}{3}$

3) The length of the curve $y = \frac{2}{3}(x^2 + 1)^{\frac{3}{2}}, 1 \leq x \leq 3$ is *1 point*

- $\frac{58}{3}$
- 21
- $\frac{68}{3}$
- $\frac{5}{3}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{58}{3}$

4) A curve C is defined by the parametric equations, $x(t) = e^t - e^{-t} + 1$ and $y(t) = t^3 - 5t^2 + 6t$. Then the tangent to the curve C at the point $(1, 0)$ is *1 point*

- $y = 6x - 6$
- $y = 3x - 3$
- $y = -x + 1$
- $y = 0$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$y = 3x - 3$

5) The length of the parametric curve $x(t) = \sin(2t) - 2t$ and $y(t) = 2\sin^2 t$ in the range $0 \leq t \leq \frac{\pi}{2}$ is *1 point*

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
4

6) The value of $\frac{dy}{dx}$ at $\theta = \pi$ for the curve $r = 3 + 2\sin\theta$ is *1 point*

- 0
- 1
- $-\frac{3}{2}$
- $\frac{3}{2}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$-\frac{3}{2}$

7) The area of the region in the plane enclosed by the curve $3r = 2(1 + \cos\theta)$ is *1 point*

- $\frac{2\pi}{3}$
- $\frac{\pi}{3}$
- $\frac{4\pi}{3}$
- $\frac{4\pi}{9}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{2\pi}{3}$

8) The area of the region that lies inside the curve $r = 2\sin\theta, 0 \leq \theta \leq \pi$ and outside the curve $r = 2 - 2\sin\theta, 0 \leq \theta \leq 2\pi$ is *1 point*

- $\sqrt{3} - \frac{\pi}{3}$
- $4\sqrt{3} - \frac{4\pi}{3}$
- $2 - \frac{\pi}{2}$
- $8\sqrt{3} - \frac{8\pi}{3}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$4\sqrt{3} - \frac{4\pi}{3}$

9) The length of the curve $r = \sin^2(\frac{\theta}{2}), 0 \leq \theta \leq \pi$ is *1 point*

- 1
- $\frac{1}{2}$
- 2
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

10) The volume of the solid generated by revolving the region bounded by the curve $y = x^2 + 1$ and the line $y = -x + 3$ about x-axis is *1 point*

- $\frac{117}{5}$
- $\frac{117\pi}{5}$
- $\frac{118\pi}{5}$
- $\frac{118}{5}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{117\pi}{5}$