



MATHEMATICS

WORK SHEET THREE

NAME.....GRADE.....SECTION.....ROLLNUMBER.....

I IF the statement is correct write true unless false

1 $\int_1^2 \sqrt{2x-1} dx$ is equal $\textcolor{red}{\text{!}}$ $3\frac{\sqrt{3}}{3}-1$

2 $\int x^n \ln x dx$ is equal $\textcolor{red}{\text{!}}$ $\frac{x^{n+1}}{n+1} \ln x - \frac{x^{n+1}}{n+1}$

3

The area of the region bounded by the graph of the function $f(x) = x^2 - 3x + 2$ and the x -axis between $x=0$ and $x=$

4 The area of the region enclosed by the graph of $y = x^2 = 1$ and the line $y=5$ is equal $\textcolor{red}{\text{!}}$ 32 unit^2

5 $\int x \cos x dx$ is equal $\textcolor{red}{\text{!}}$ $x \sin x - \cos x + c$ $\textcolor{red}{\text{!}}$

6 $\int x^2 \log_3 x dx$ is equal to $\frac{1}{\ln 10}$ $\textcolor{red}{\text{!}}$

7

If f is continuous on the closed interval $[a, b]$ and F is the antiderivative of f that is $F'(x) = f(x)$ for

II chose the correct answer from the given alternative

8 $\int x e^{-x} dx$ is equal $\textcolor{red}{\text{!}}$ $\textcolor{red}{\text{!}}$

A $x e^{-x} + 1 + c$ B $x e^{-x} + x + c$ C $-x e^{-x} + e^{-x} + c$ D $-x e^{-x} + 1 + c$

9 The area of the region enclosed by the graph of $x = -y^2$ and $x = 9 - 2y^2$ is equal $\textcolor{red}{\text{!}}$

A 48 B 63 C 36 D 84

10 $\int \frac{x}{x^2 + 2x + 1} dx$ is

A $\ln(x^2 + 2x + 1) + c$ B $\ln|x+1| + \frac{1}{x+1} + c$ C $\ln(x^2 + 2x + 1) + c$ D $\ln(x^2 + 2x + 1) + \frac{1}{x+1} + c$

11 At what interval of $f(x) = x^3 - 12x - 5$ is strictly increase

A $[-2, 2]$ B $[2, \infty)$ $\textcolor{red}{\text{!}}$ C $(-\infty, -2]$ D $[2, \infty)$ $\textcolor{red}{\text{!}}$

12 What is the critical number of the function $f(x) = 2x^4 - 16x^2$

A 0, 2, 4 B -2, 0, 2 C -2, 2, 4 D 0, 2, 6

13 A spherical balloon is inflated at the rate of $3 \text{ cm}^3/\text{min}$ how fast is the radius of the balloon increase when the radius is 6cm

$$A \quad 48 \pi \text{cm}^2/\text{min} \quad B \frac{1}{\frac{32 \pi \text{cm}^2}{\text{min}}} \quad C \frac{1}{\frac{48 \pi \text{cm}^2}{\text{min}}} \quad D \quad 32 \pi \text{cm}^2/\text{min}$$

Work out

14 $\int \sin^2 3x \, dx$ is

15 $\int \cos^3 x \, dx$ is

16 What is the volume of the graph generate by rotating about y-axis and $y = x^2 + 2$ when $x = -1 \wedge x = 2$

17 $\int_1^2 x^2 \, dx$

18 $\int x \cos 2x \, dx$

19 $\int x e^{x^2} \, dx$ is

20 $\int_1^{\sqrt{2}} \frac{x}{x^2+1} \, dx$ is

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