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ETHIOPIA

I IF the statement is correct write true unless false

1 $\int_1^2 \sqrt{2x-1}\,dx$ is equal to $3\frac{\sqrt{3}}{3}-1$

2 $\int x^n \ln x\,dx$ is equal to $\frac{x^{n+1}}{n+1}\ln x - \frac{x^{n+1}}{n+1}$

3 The area of the rigion bounded by the graph of the function $f(x) = x^2 - 3x + 2$ and the x -axis between $x = 0$ and $x = 3$ is equal to $\frac{6}{5}$

4 The area of the rigion enclosed by the graph of $y = x^2 = 1$ and the line $y = 5$ is equal to 32unit^2

5 $\int x\cos x\,dx$ is equal to $x\sin x - \cos x + c$

6 $\int x^2 \log_3^x dx$ is equal to $\frac{1}{\ln 10}(x\ln x - \frac{x}{3})$

7 If f is continouse on the closed on the closed intervale [a b]and F is the antiderivative of f that is $F'(x) = f(x)$for all x then $\int_a^b f(x)dx = F(b) - F(a)$

II chose the correct answer from the given alternative

8 $\int xe^{-x}dx$ is equal to

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

9 The area of the region enclosed by the graph of $x = -y^2$ and $x = 9 - 2y^2$ is equal to

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 $[2\ \infty)U[-2\ \infty)$ C $(-\infty\ -2]U[2\ \infty)$ D $[2\ \infty)$

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

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 $x = -1$ and $x = 2$

17 $\int_1^2 x^2(x^3 - 3)^3 \, dx$ is

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

19 $\int xe^{x^2} dx$ is

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

PREPARED BY DEJENIE A