قائمة الاسئلة

رياضيات 2- كلية الهندسة - قسم العلوم الاساسية (عمارة) - المستوى الاول- 3ساعات - درجة هذا الاختبار (60)

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1) $\int \cos(2x+3)dx = \sin(2x+3)+c$

1) - true.
2) + False.

2) $\int_a^b [C_1 f(x) \pm C_2 g(x)]dx = C_1 \int_a^b f(x)dx \pm C_2 \int_a^b g(x)dx$

1) + true.
2) - False.

3) The integral $\int_0^2 \frac{4x dx}{\sqrt{4-x^2}}$ is improper at $x=2$

1) + true.
2) - False.

4) $\int \sec^2(7x-1)x dx = \sin x + c$

1) - true.
2) + False.

5) $\int \sec^6 x.\tan^4 x dx = \int (\tan^2 x+1)^2.\tan^4 x.\sec^2 x dx$

1) + true.
2) - False.

6) $\int_{-\pi}^{\pi} \frac{\cos x}{\sqrt{4+3\sin x}} dx = -1$

1) - true.
2) + False.

7) $\int \frac{1}{x\sqrt{x^2-25}} dx = \frac{1}{5}\sec^{-1}\frac{x}{5}+c$

1) + true.
2) - False.

8)

$$\int f^n(x).f'(x)dx = \frac{f^n(x)}{n} + c$$

1) - true.
2) + False.

9)

$$\int_0^{\frac{\pi}{4}} \tan x.\sec^2 x dx = \frac{1}{2}$$

1) + true.
2) - False.

10)

$$\int \sec x(\sec x - \tan c) = \frac{\tan^2 x}{2} - \sin x + c$$

1) - true.
2) + False.

11) Suppose that $f.and..g$ are integrable and

$$If \quad \int_{-2}^{5} f(x)dx = 20...و \quad .\int_{-2}^{0} f(x)dx = 12 \quad and \int_{-2}^{0} g(x)dx = 8$$

$$then..\int_0^5 -2f(x)dx =$$

$a) = -24 \quad b) = -34 \quad c) = 4 \quad d) = -16$

1) - a
2) - b
3) - c
4) + d

12) Suppose that $f.and..g$ are integrable and

$$If \quad \int_{-2}^{5} f(x)dx = 20...و \quad .\int_{-2}^{0} f(x)dx = 12 \quad and.\int_{-2}^{0} g(x)dx = 8$$

$$then \quad \int_{-2}^{0}[f(x) - 2g(x)]dx =$$

$a) = 15 \quad b) = 7 \quad c) = -4 \quad d) = 10$

1) - a
2) - b
3) + c
4) - d

13) . The value of the $\sum_{i=1}^{5}(4-i^2)$ is

$a) = -35$ $b) = 12$ c) = -3 $d) = 5$

1) + a
2) - b
3) - c
4) - d

14) The value of the $\int_0^{\frac{\pi}{3}} \sec^2 x dx$

$a) = 12$ $b) = \sqrt{3}$ $c) = -2\sqrt{3}$ $d) = -2$

1) - a
2) + b
3) - c
4) - d

15) If $f(x)$ is continuous on interval $[5, +\infty[$, then $\int_5^{\infty} f(x)dx$ is:

$a) = \lim_{t\to +b} \int_5^{t} f(x)dx$ $b) = \lim_{t\to\infty^-} \int_t^{b} f(x)dx$

$c) = \lim_{t\to\infty} \int_t^{5} f(x)dx$ $d) = \lim_{t\to\infty} \int_5^{t} f(x)dx$

1) - a
2) - b
3) - c
4) + d

16) The value of the $\int_0^1 \frac{4x}{6+2x^2} dx$ is :

$a) = -5$ $b) = \ln(\frac{4}{3})$ $c) = \ln 5$ $d) = \ln(\frac{3}{4})$

1) - a
2) + b
3) - c
4) - d

17) The integration of $\int \frac{1}{3+x^2} dx$

$a) = \frac{1}{\sqrt{3}} \tan^{-1} \frac{x}{\sqrt{3}} x + c$ $b) = \tan^{-1} \frac{x}{\sqrt{3}} x + c$

$c) = \frac{1}{\sqrt{5}} \tan^{-1} x + c$ $d) = \tan^{-1} x + c$

1) + a

2) - b
3) - c
4) - d

18) The integration of $\int \sec x(\tan x+\cos x)dx$ is:

$a) = \sec x + c$ $b) = \tan x + x + c$
$c) = \sec x + x + c$ $d) = \tan x + c$

1) - a
2) - b
3) + c
4) - d

19) The value of the $\int_0^{\sqrt{3}} \frac{1}{\sqrt{4-x^2}} dx$

$a) = \frac{4\pi}{3}$ $b) = \frac{\pi}{8}$
$c) = \frac{\pi}{4}$ $d) = \frac{\pi}{3}$

1) - a
2) - b
3) - c
4) + d

20) $\int \sin^2 2y.\cos^3 2y.dy$

$a) \frac{\sin^7 2y}{7} - \frac{\sin^5 2y}{5} + c$ $b) \frac{\sin^3 2y}{6} - \frac{\sin^5 2y}{10} + c$
$c) \frac{\cos^8 2y}{8} - \frac{\cos^5 2y}{5} + c$ $d) \frac{\sec^3 2y}{3} - \frac{\tan^5 2y}{5} + c$

1) - a
2) + b
3) - c
4) - d

21) The integration of $\int e^x \sin x dx$

$a) = \frac{1}{2}e^x \sin x - \frac{1}{2}e^x cocx + c$ $b) = \frac{1}{2}e^x \sin x + \frac{1}{2}e^x cocx + c$
$c) = e^x \sin x + e^x cocx + c$ $d) = \frac{1}{2}e^x \cos x - e^x cocx + c$

1) + a
2) - b
3) - c

4) - d

22) The trigonometric substitution for the integral of the function $f(x)=\sqrt{9-2x^2}$ is:

$a)\ x=2\sec\frac{\sqrt{5}}{2}\theta$ $b)\ x=\frac{3}{\sqrt{2}}\sin\theta$

$c)\ x=\frac{\sqrt{5}}{2}\sin\theta$ $d)\ x=\frac{\sqrt{5}}{2}\tan\theta$

1) - a
2) + b
3) - c
4) - d

23) The integration of $\int(x^3-15x^2+4x)dx$ is:

$a)=x^3+2x^2+x+c$ $b)=\frac{1}{4}x^4-5x^3+2x^2+c$

$c)=x^5+2x^3+x+c$ $d)=2x^4+2x^3+x+c$

1) - a
2) + b
3) - c
4) - d

24) The integration of $\int\frac{\sqrt{x^2-25}}{x}dx$

$a)=\sin^{-1}x+\sqrt{x^2-25}+c$ $b)=\frac{1}{5\sqrt{x^2-25}}-\sec^{-1}\frac{x}{5}+c$

$c)=\left|\frac{\sqrt{x^2-25}}{5}-\tan^{-1}\frac{x}{5}\right|+c$ $d)=5\left(\frac{\sqrt{x^2-25}}{5}-\sec^{-1}\frac{x}{5}\right)+c$

1) - a
2) - b
3) - c
4) + d

25) The integration of $\int\frac{e^x dx}{e^{2x}+3e^x+2}$ is:

$a)=\frac{1}{2}e^x-\frac{1}{2}\ln|e^x cocx|+c$ $b)=\frac{1}{2}\ln|e^x+2|-\frac{1}{2}e^x+c$

$c)=\ln\left|\frac{e^x+1}{e^x+2}\right|+c$ $d)\frac{1}{2}e^x\cos x-e^x cocx+c$

1) - a
2) - b

3) + c
4) - d

26) The substation of $\int \cos^7 x dx$ is:

$a)\int (1-\cos^2 x)^3 \sin x dx$ $b)\int (1-\sin^2 x)^3 \cos x dx$

$c)\int (1-\cos^2 x)^2 \cos x dx$ $d)\int (1-\sin^2 x)^2 \sin x dx$

1) - a
2) + b
3) - c
4) - d

27) The partial fractions for the fraction $\frac{2x+1}{x^2-7x+12}$ as sum of partial fractions is

$a) = \frac{9}{x-4} - \frac{7}{x-3}$. $b) = \frac{1}{x-2} - \frac{1}{x+2}$.

$c) = \frac{9}{x-1} + \frac{\frac{-5}{2}x + \frac{5}{2}}{x^2+1}$. $d) = \frac{2}{x-4} - \frac{4}{x^2+3}$.

1) + a
2) - b
3) - c
4) - d

28) The integration of $\int 3^{5x} dx$ is:

a) $= 3^{5x}.5ln3 + C$ b) $= \frac{3^{5x}}{3ln5} + C$

c) $= \frac{3^{5x}}{ln3} + C$ d) $= \frac{3^{5x}}{5ln3} + C$

1) - a
2) - b
3) - c
4) + d

29) . The integration of $\int_{-3}^{2} \frac{2x}{\sqrt{x^2-1}} dx$ is:

$a) =$ improper $at \quad x=-4$ $b) = improper at \quad x=3$

$c) = improper at \quad x=\pm 1$ $d) = proper \quad \forall x$

1) - a
2) - b
3) + c
4) - d

30)

The integration of $\int \frac{\tan^{-1} x}{1+x^2} dx$ *is* :

$a) = \frac{1}{2}\tan^{-1} x + c$

$b) = \frac{(\tan^{-1} x)^2}{2} + c$

$c) = \tan x + c$

$d) = \frac{1}{2}\tan^{-1} x + c$

1)	-	a
2)	+	b
3)	-	c
4)	-	d