



قائمة الاسئلة

رياضيات 2-مدني-ميكانيكا-كهرباء-المستوى الاول-درجة الأختبار 60 درجة-الزمن ثلاث ساعات

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1)

The integral of trigonometric functions

$\int_{-\frac{\pi}{4}}^{\frac{\pi}{2}} \cot\theta \csc^2\theta d\theta =$	A: $\frac{1}{4}$	B: $\frac{1}{2}$	C: $\frac{1}{3}$	D: None of them
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- 1) - A
2) + B
3) - C
4) - D

2)

The integral of trigonometric functions

$\int_0^{\pi/2} \sin 2x \cos 3x dx =$	A: $1/5$	B: $-1/5$	C: $-2/5$	D: None of them
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- 1) - A
2) - B
3) + C
4) - D

3)

The integral of improper functions

$\int_0^{\infty} \frac{dv}{(1+v^2)(1+\tan^{-1}v)} dv =$	A: $\ln(1-\frac{\pi}{2})$	B: $\ln(1+\frac{\pi}{2})$	C: $\ln(2-\frac{\pi}{2})$	D: None of them
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- 1) - A
2) + B
3) - C
4) - D
- 4)

The integral of improper functions

$\int_0^1 x \ln x dx =$	A: $\frac{1}{2}$	B: $\frac{1}{4}$	C: $-\frac{1}{4}$	D: None of them
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- 1) - A
2) - B
3) + C
4) - D
- 5)

The length of curve: $y = \left(\frac{1}{3}\right)(x^2 + 2)^{\frac{3}{2}}$ from $x = 0$ to $x = 3$ is:

A: 12	B: 22	C: 24	D: None of them
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- 1) + A
2) - B
3) - C
4) - D
- 6)

4The volume of the solid generated by revolving the region bounded by the line and curve:

$$y = x - x^2, y = 0.$$

A: $\frac{\pi}{10}$	B: $\frac{\pi}{20}$	C: $\frac{\pi}{30}$	D: None of them
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- 1) - A
2) - B
3) + C
4) - D

7)

The area of the region enclosed by revolving the region bounded by the line and the curve:
 $y = x^2$, and $y = x + 6$

A: $\frac{125}{5}$	B: $\frac{125}{6}$	C: $\frac{125}{7}$	D: None of them
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- 1) - A
2) + B
3) - C
4) - D

8)

The center of mass of a thin plate of constant δ density covering the given region:
The region bounded by the parabolas $y = x - x^2$ and $y = -x$

A: $(1, -\frac{3}{5})$	B: $(-1, \frac{3}{5})$	C: $(2, \frac{3}{5})$	D: None of them
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- 1) + A
2) - B
3) - C
4) - D

9)

The integral of inverse trigonometric functions:

$\int \frac{e^{\sin^{-1}(x)}}{\sqrt{1-x^2}}$	A: $2e^{\sin^{-1}(x)} + c$	B: $e^{\sin^{-1}(x)} + c$	C: $2e^{\sin^{-1}(x)} + C$	D: None of them
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- 1) - A





- 2) B
3) C
4) D

10)

The integral of inverse trigonometric functions:

$\int \frac{\sqrt{\tan^{-1}x}}{1+x^2} dx =$	A: $\frac{2}{3}\sqrt{(\tan^{-1}x)^3} + C$	B: $\frac{2}{3}\sqrt{(\tan^{-1}2x)^3} + C$	C: $\frac{2}{3}\sqrt{(\tan^{-1}x)^3} + C$	D: None of them
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- 1) A
2) B
3) C
4) D

11)

The solution of initial value problems:

$$\frac{dy}{dt} = e^t \sin(e^t - 2), y(\ln 2) = 0.$$

A: $y = 1 - \cos(e^t - 2)$	B: $y = 1 + \cos(e^t - 2)$	C: $y = -1 - \cos(e^t - 2)$	D: None of them
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- 1) A
2) B
3) C
4) D

12)

The solution of initial value problems:

The gradient of a curve is given by: $\frac{dy}{dx} + \frac{x^2}{2} = 3x$, then the equation of the curve if it passes through the point $(1, \frac{1}{3})$ is

A: $y = \frac{3}{2}x^2 + \frac{x^3}{6} - 1$	B: $\ln y = \frac{3}{2}x^2 - \frac{x}{6} + 1$	C: $y = \frac{3}{2}x^2 - \frac{x^3}{6} - 1$	D: None of them
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- 1) A
2) B
3) C





4) - D

13)

The following sequence: $\left\{ \frac{n^2}{2n+1} \right\}_{n=1}^{\infty}$ is

A: convergence to 0 B: divergence to ∞ C: convergence to 1

1) - A

2) + B

3) - C

14)

The following sequence: $\left\{ \cos\left(\frac{3}{n}\right) \right\}_{n=1}^{\infty}$ is

A: convergence to 0 B: divergence to ∞ C: convergence to 1

1) - A

2) - B

3) + C

15)

The following series: $\sum_{k=1}^{\infty} \frac{1}{k(k+1)}$ is

A: convergence to 0 B: divergence to ∞ C: convergence to 1

1) - A

2) - B

3) + C

16)





The following series: $5 + \frac{5}{4} + \frac{5}{4^2} + \dots + \frac{5}{4^{k-1}} + \dots$ is

A: Harmonic series	B: geometric series	C: p-series
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- 17) 1) - A
2) B
3) - C

the integral of the hyperbolic functions: $\int_{\ln 2}^{\ln 4} \coth x dx$.

A: $\frac{15}{8}$	B: $-\frac{20}{8}$	C: $\frac{20}{8}$	D: None of them
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- 18) 1) A
2) - B
3) - C
4) - D

the integral of the hyperbolic functions: $\int_0^{\ln 2} 4e^{-\theta} \sinh \theta d\theta$.

A: $-\ln 4 - \frac{3}{4}$	B: $\ln 4 + \frac{3}{4}$	C: $\ln 4 - \frac{3}{4}$	D: None of them
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- 19) 1) - A
2) - B
3) C
4) - D





The integral of the functions: $\int_0^1 \frac{dx}{\sqrt{1-x^2}}$ is

A: $\frac{\pi}{3}$	B: $\frac{\pi}{2}$	C: $\frac{\pi}{4}$	D: None of them
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- 1) - A
- 2) B
- 3) - C
- 4) - D

20)

The integral of the functions: $\int \sqrt{9-x^2} dx$ is

A: $\frac{9}{2} \sin^{-1} \left(\frac{x}{3} \right) - \frac{x\sqrt{9-x^2}}{3} + c$	B: $\frac{9}{2} \sin^{-1} \left(\frac{x}{3} \right) + \frac{x\sqrt{9-x^2}}{2} + c$	C: $\frac{9}{2} \sin^{-1} \left(\frac{x}{3} \right) + \frac{x\sqrt{9-x^2}}{3} + c$	D: None of them
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- 1) - A
- 2) B
- 3) - C
- 4) - D

21)

The integral of the functions: $\int \tan^5 x \sec^3 x dx$ is:

A: $\frac{1}{7} \sec^7 x + \frac{2}{5} \sec^5 x + \frac{1}{3} \sec^3 x + c$
B: $\frac{1}{7} \sec^7 x - \frac{2}{5} \sec^5 x - \frac{1}{3} \sec^3 x + c$
C: $\frac{1}{7} \sec^7 x - \frac{2}{5} \sec^5 x + \frac{1}{3} \sec^3 x + c$
D: None of them

- 1) - A
- 2) - B
- 3) C
- 4) - D

