

(a) $x - 2y + 10 = 0$, (b) $2y - 3x + 5 = 0$, (c) $2x + 4y + 4 = 0$, (d) o.w هي

(18) المعادلة الكارتيزية للخط المستقيم الذي يمر بالنقطة $A(3,4)$ ويوازي المتجه $\underline{B}(6,7)$ هي

(a) $7x - 6y + 3 = 0$, (b) $6x + 7y - 3 = 0$, (c) $5x + 4y - 12 = 0$, (d) o.w

(19) الدائرة التي معادلتها $r^2 + 3r \cos \theta + 3r\sqrt{3} \sin \theta = 16$ مركزها ونصف قطرها

(a) $(4, \frac{\pi}{6})$, 6 , (b) $(3, \frac{4\pi}{3})$, 5 , (c) $(-3, \frac{\pi}{3})$, 4 , (d) o.w

(20) معادلة وتر القطع المكافئ $y^2 = 12x$ والذي تنصفه النقطة $(6,4)$ هي

(a) $3x - 2y + 13 = 0$, (b) $2y - 3x + 10 = 0$, (c) $4y - 2x + 5 = 0$, (d) o.w

(21) القطع المكافئ $y^2 = 16x$ يمر بالنقطة $(1,4)$ معادلة المماس له عند هذه النقطة هي

(a) $y = 2(x+1)$, (b) $2y = 6(x+1)$, (c) $y = 3(x+1)$, (d) O.W

(22) معادلة العمودي للقطع في (21) هي

(a) $3y + 6y - 15 = 0$, (b) $x + 2y - 9 = 0$, (c) $4y + 6y - 18 = 0$, (d) O.W

(23) للقطع المكافئ $y^2 - 2y = 4x - 4$ تكون احداثيات الرأس ومعادلات كل من المحور والدليل على الترتيب هي

(a) $(\frac{3}{4}, 1)$, $y = 1$, $x = -\frac{1}{4}$, (b) $(-\frac{3}{4}, 1)$, $y = 2$, $x = -\frac{1}{4}$, (c) $(2, \frac{3}{4})$, $y = 5$, $y = \frac{1}{8}$, (d) O.W

(24) القطع الناقص $x^2 + 4y^2 - 4x - 8y - 8 = 0$ مركزه واختلافه المركزي هما :

(a) $(-2, -1)$, $\frac{\sqrt{3}}{2}$, (b) $(2, 1)$, $\frac{\sqrt{3}}{2}$, (c) $(2, -1)$, $\frac{\sqrt{5}}{2}$, (d) $(4, -1)$, $\frac{\sqrt{5}}{3}$

(25) القطع الناقص الذي معادلاته البارامترية $x = 1 + 4e^t$, $y = -2 + 3\sqrt{1 - e^{2t}}$ تكون معادلته القياسية وطول وتره البؤري العمودي على الترتيب هما :

(a) $\frac{(x-1)^2}{16} + \frac{(y+2)^2}{9} = 1$, $\frac{9}{2}$, (b) $\frac{(x+1)^2}{16} + \frac{(y-2)^2}{9} = 1$, $\frac{15}{4}$
(c) $\frac{(x+1)^2}{9} + \frac{(y+2)^2}{16} = 1$, $\frac{18}{4}$, (d) $\frac{(x-1)^2}{9} + \frac{(y-2)^2}{16} = 1$, $\frac{18}{2}$

(a) $\frac{1}{3}\sqrt{1+x} + c$, (b) $2\text{Ln}|\sqrt{1+x}+1| + c$, (c) $2\tan^{-1}\sqrt{1+x} + c$, (d) O.W

يساوي $\int \tan^6 x \sec^4 x dx$ (9)

(a) $\frac{\tan^8 x}{8} + \frac{\tan^{10} x}{10} + c$, (b) $\frac{\tan^7 x}{7} + \frac{\tan^9 x}{9} + c$, (c) $\frac{\tan^6 x}{6} + \frac{\tan^8 x}{8} + c$, (d) O.W

يساوي $\int_0^1 \sqrt{1+x} dx$ (10)

(a) $\frac{2}{3}(\sqrt{2}+1) + c$, (b) $\frac{2}{3}(2\sqrt{2}+1) + c$, (c) $\frac{2}{3}(2\sqrt{2}-1) + c$, (d) O.W

يساوي $\int \sqrt{\frac{1-x}{2x+3}} dx$ (11)

(a) $\frac{1}{2}\sqrt{3-x-2x^2} + \frac{5}{4\sqrt{2}}\sin^{-1}\left(\frac{x+1/4}{5/4}\right) + c$, (b) $\frac{1}{1}\sqrt{3-x-2x^2} + \frac{5}{4\sqrt{2}}\cos^{-1}\left(\frac{x+1/4}{5/4}\right) + c$,

(c) $\frac{2}{3}\tan^{-1}\left(\frac{x+1/5}{5/4}\right) + c$, (d) O.W

(12) إذا كان $I_n = \int (\text{Ln } x)^n dx = x(\text{Ln } x)^n - I_{n-1}$ فإن

(a) $I_2 = x(\text{Ln } x)^2 - x\text{Ln } x + x + c$, (b) $I_2 = (\text{Ln } x)^2 - x\text{Ln } x + c$, (c) $I_2 = x\text{Ln } x - x(\text{Ln } x)^2 + c$, (d) O.W

(13) المساحة المحصورة بين المنحني $y = x^2 - 4$ ومحور السينات والخطين المستقيمين $x = 0$, $x = 4$ تساوي :

(a) 15 , (b) 10 , (c) 16 , (d) O.W

(14) حجم المخروط القائم الذي نصف قطر قاعدته $R = 4$ وارتفاعه $L = 6$ يساوي :

(a) 35π , (b) 32π , (c) 42π , (d) O.W

(15) مساحة المنطقة المحددة بالمنحنيين $y = \sqrt{x}$, $y = x^2$ تساوي

(a) $\frac{1}{6}$, (b) $\frac{1}{4}$, (c) $\frac{1}{3}$, (d) O.W

(16) الصورة الكارتيكية للمعادلة $r \cos\left(\theta - \frac{\pi}{3}\right) = 6$ هي

(a) $x + \sqrt{3}y = 12$, (b) $6x + \sqrt{3}y = 6$, (c) $\sqrt{3}x + y = 12$, (d) o.w

(17) معادلة المحور الأساسي للدائرتين

$C_1 : x^2 + y^2 + 2x + 4y + 6 = 0$, $C_2 : x^2 + y^2 + 4x + 8y + 10 = 0$

Department of Math. Faculty of Science درجة الامتحان: (٥٠ درجة) الامتحان في ثلاث صفحات	 الفرقة: المستوى الأول المادة: رياضيات ١٠٥ اليوم والتاريخ: الثلاثاء ٢٥/٨/٢٠٢٠ م	قسم الرياضيات كلية العلوم امتحان نهاية الفصل الدراسي الصيفي ٢٠٢٤/٢٠٢٥ م
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(درجتان لكل سؤال)

اختر الاجابة الصحيحة لكل سؤال مما يأتي :-

$$\int \frac{\cos^2 2x}{\sqrt{1 + \cot 2x}} dx \quad (1) \quad \text{يساوي}$$

(a) $2\sqrt{1 + \tan 2x} + c$, (b) $-\sqrt{1 + \cot 2x} + c$, (c) $\frac{1}{2}\sqrt{1 + \cot 2x} + c$, (d) O.W

$$\int \frac{e^{\cot^{-1} x}}{1 + x^2} dx \quad (2) \quad \text{يساوي}$$

(a) $\frac{1}{2}e^{\cot^{-1} x} + c$, (b) $-e^{\cot^{-1} x} + c$, (c) $\cot^{-1} e^x + c$, (d) O.W

$$\int \frac{\sin 2x}{1 + \cos^2 x} dx \quad (3) \quad \text{يساوي}$$

(a) $-\ln(1 + \cos^2 x) + c$, (b) $-\frac{1}{2}\ln(1 + \cos^2 x) + c$, (c) $\ln(1 + \sin x) + c$, (d) O.W

(a) $\frac{\pi}{12}$, (b) $\frac{-\pi}{6}$, (c) $\frac{\pi}{8}$, (d) O.W

$$\int_0^3 \frac{dx}{9 + x^2} \quad (4) \quad \text{يساوي}$$

(a) $\frac{\pi}{2}$, (b) $\frac{\pi}{4}$, (c) 2 , (d) O.W

$$\int_0^1 \sqrt{1 - x^2} dx \quad (5) \quad \text{يساوي}$$

$$\int \frac{x - \tan^{-1} x}{1 + x^2} dx \quad (6) \quad \text{يساوي}$$

(a) $\frac{1}{2}\ln(1 + x^2) - \frac{(\tan^{-1} x)^2}{2} + c$, (b) $\ln(1 + x^2) + \tan^{-1} x + c$, (c) $\frac{1}{2}\ln(1 + x^2) + c$, (d) O.W

$$\int \frac{e^{3x}}{\sqrt{1 + e^{3x}}} dx \quad (7) \quad \text{يساوي}$$

(a) $\frac{1}{3}(2\sqrt{1 + e^{3x}}) + c$, (b) $\frac{1}{6}(2\sqrt{1 + e^{3x}}) + c$, (c) $\sqrt{1 + e^{3x}} + c$, (d) O.W

$$\int \frac{dx}{(x + 2)\sqrt{1 + x}} \quad (8) \quad \text{يساوي}$$

Q3: write a MATLAB code to print the odd numbers between 1,10. (10 Marks)

Answer area for Q3.

Q4: write the MATLAB commands to Find the solution to the system of linear equations (10 Marks)

$$x + 2y + 3z = 14, 4x + 5y + 6z = 32, 7x + 8y + z = 26$$

Answer area for Q4.

Best Wishes...

Dr. Amira Allam

10. Which symbol is used to initialize a variable?

- (a) = (b) -> (c) == (d) init

11. What is the value of $c = \text{sum}(A(:,2))$, if $A = \begin{pmatrix} 1 & 3 & 4 \\ 5 & 5 & 7 \\ -1 & 3 & 6 \end{pmatrix}$

- a) $c = 11$ b) $c = 8$ c) $c = 18$ (d) 17

12. The number of outputs of this MATLAB function "function [a,b,c] = mad(x,y)"

- a) 3 b) 2 c) 1 (d) 0

13. We use command ----- in repetitive sentences with condition

- a) for b) if c) while (d) ifelse

14. To ask the user via if statement that, x not y equal we write

- a) $x \text{ .noteq. } y$ b) $x \sim y$ c) $x \text{ not} = y$ (d) $x \neq y$

15. Which command is used to calculate the determinant of matrix a?

- a) |a| b) int(a) c) det(a) (d) determinant(a)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Q2: Choose T the correct sentence or F for the wrong one (15 marks : 1.5 mark for each point)
True or False

- The inverse of matrix A can be calculated by inv(A) in MATLAB..
- Differential equations can be solved by using dsolve command.
- Function mysum is defined as function s = mysum[inputs].
- Drawing functions in MATLAB by using draw command.
- To add comment we must add % before.
- It is important to define the type of each variable in MATLAB.
- We can calculate the summation of an array, we can use sum.
- disp(x) is used to display the value of variable x.
- The command solve is used to find the solution for the second-degree equation.
- >>1:2:10 is used to print the even numbers between 1 and 10.

1	2	3	4	5	6	7	8	9	10



Date: 6/9/2025
Time: 2 hours
50 Marks

1st Term
حاسب آلي (100 ك ر)
level 1



Answer the following questions

Q1: Choose the correct answer (15 marks : 1 mark for each point)

1. Which command is used to clear a command window?

- (a) Clear (b) close all (c) clc (d) clear all

2. Executing in the command window the following code returns.

`a = [1:3]'; size(a)`

- (a) error (b) 1 3 (c) 3 1 (d) 3 3

3. What would be the output of the following code (in editor window)?

`a = [1 0 2]; b = [3 0 7]; c=a*b;`

- (a) [2 0 21] (b) [3 0 14] (c) [14 0 3] (d) error

4. What would be the output of the following code (in editor window)?

`a=1:5; c=a.^2`

- (a) [1 2 5] (b) [1 2 3 4] (c) [25 16 9 4 1] (d) [1 4 9 16 25]

5. What is the output of the following code?

```
for i=1:4
    for j=1:4
        a=5;a=a+5;
    end
end
disp(a)
```

- (a) No output will be shown (b) a = 10 (c) a = 8 (d) error

6. What operator helps in the transpose of matrix A?

- (a) A' (b) A; (c) A\ (d) %A

7. What is the value of p for the below Matlab code?

`A = [1 -3 2]; B = [-4 9 6]; p = diff(A)`

- (a) [-4 5] (b) 5 (c) [1,1] (d) [2,2,2]

8. What is the output of the following code?

`mean[1:10]`

- (a) error (b) 5.5 (c) 4.5 (d) Syntactical Error

9. The output for `diff(p^2,q)` is

- (a) 0 (b) 2*p (c) 2 dp/dq (d) error