week6_hw

Graded

Student
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Total Points
90 / 90 pts

Question 1
Calculate the formulations.
15 / 15 pts

+ 15 pts Point adjustment

Question 2
Draw circles.
15 / 15 pts

+ 15 pts Point adjustment

Question 3
Solve equations.
15 / 15 pts

+ 15 pts Point adjustment

Question 4
External data acquisition.
15 / 15 pts

+ 15 pts Point adjustment

Question 5
Read in excel data.
15 / 15 pts

+ 15 pts Point adjustment

Question 6
Compare plans.
15 / 15 pts

+ 15 pts Point adjustment

Questions assigned to the following page: 1 and 2

1、已知 a =17.2, b = 4。 计算下列算式并显示结果

$c = \sqrt[3]{a + 9.8}$

$d = 10 \cdot \sqrt{5b + 16}$

```
a = 17.2;
b = 4;
c = (a+9.8)^(1/3)
```

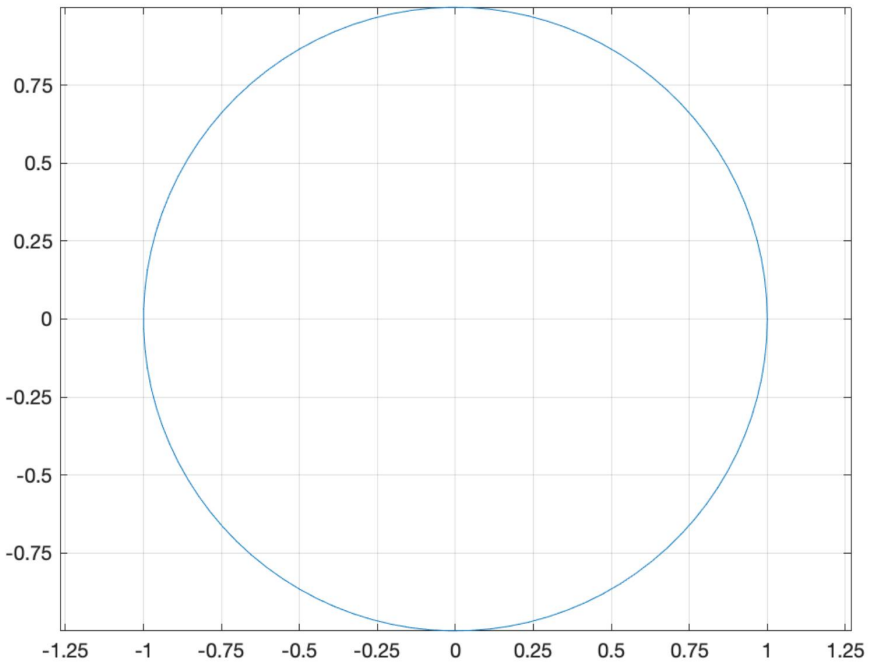
```
c = 3
```

```
d = 10 * (5*b + 16)^0.5
```

```
d = 60
```

2、利用sin及cos函数画圆

```
theta = linspace(0,2*pi);
x = cos(theta);
y = sin(theta);
plot(x,y);
yticks(-1.25:0.25:1.25)
xticks(-1.25:0.25:1.25)
axis equal;
grid on
```



Questions assigned to the following page: 3 and 4

3、求解方程组

$$\begin{cases} 3x+2y-z=10 \\ -x+3y+2z=5 \\ x-y-z=-1 \end{cases}$$

a. 将方程组转化成矩阵形式

b. 使用matlab求解方程组

```
% a:
augmented_matrix = [3 2 -1 10; -1 3 2 5; 1 -1 -1 -1];
% b:
x = augmented_matrix(:,1:3) \ augmented_matrix(:,end)
```

```
x = 3×1
   -2.0000
    5.0000
   -6.0000
```

由上可知：

$x=-2, y=5, z=-6$

4、外部数据获取（不要修改获取的数据的值）

a.读入Array.mat，并显示其中的两个变量vector及matrix

b. 将vector中第3、6、9、12个数赋给vectorA，并显示结果

c. 将vector中的第4个数修改为12后赋值于vectorB，并显示结果

d. 将matrix的第5，6，7行赋予matrixA，并显示结果

e.将matrix的第1，2行及第2，3列赋予matrixB，并显示结果

f. 找出matrix中小于3的值的位置

```
% a:
load Array.mat
vector
```

```
vector = 1×12
     4    -4     3    -3     2     2    -1     0    -4     4     0     5
```

```
matrix
```

```
matrix = 10×5
    -1     2    -4     5     4
    -2    -3     4    -2    -3
     3     3     5    -4    -2
    -4     3     1    -1    -4
     3    -3     3     1    -5
     4     3     2    -5     5
     0    -5     4     5    -4
    -3     4    -2     2    -4
```

Question assigned to the following page: 4

```
     1    -1     0     2     4
     0     2    -4     0     4
```

```
% b:
vectorA = vector(3:3:12)
```

```
vectorA = 1×4
     3     2    -4     5
```

```
% c:
vectorB = [vector(1:3) 12 vector(5:end)]
```

```
vectorB = 1×12
     4    -4     3    12     2     2    -1     0    -4     4     0     5
```

```
% d:
matrixA = matrix(5:7, :)
```

```
matrixA = 3×5
     3    -3     3     1    -5
     4     3     2    -5     5
     0    -5     4     5    -4
```

```
% e:
matrixB = matrix(1:2, 2:3)
```

```
matrixB = 2×2
     2    -4
    -3     4
```

```
% f:
pos = find(matrix < 3);
disp(pos)
```

```
     1
     2
     4
     7
     8
     9
    10
    11
    12
    15
    17
    19
    20
    21
    24
    26
    28
    29
    30
    32
    33
    34
    35
    36
    38
    39
    40
    42
```

Questions assigned to the following page: 4, 5, and 6

```
43
44
45
47
48
```

5、读入excel数据分析

```
data_xlsx = readtable("data.xlsx","VariableNamingRule","preserve");
data_xlsx.("占总产值百分比") = string(data_xlsx.("销售额（万元）") ...
    ./ (sum(data_xlsx.("销售额（万元）") / 2)) .* 100) + '%';
disp(data_xlsx);
```

月份	销售额（万元）	占总产值百分比
{'1月' }	100	"0.852951%"
{'2月' }	520	"4.43535%"
{'3月' }	800	"6.82361%"
{'4月' }	1500	"12.7943%"
{'5月' }	1320	"11.259%"
{'6月' }	1100	"9.38246%"
{'7月' }	875	"7.46332%"
{'8月' }	987	"8.41863%"
{'9月' }	652	"5.56124%"
{'10月' }	1300	"11.0884%"
{'11月' }	1600	"13.6472%"
{'12月' }	970	"8.27363%"
{'销售总额: '}	11724	"100%"

```
writetable(data_xlsx, "data_ans.xlsx");
```

6、不同方案的比价

各市场对应物品价格:

元/斤	超市(1)	菜场(2)	便利店(3)
青菜	5	8	6
鱼肉	20	18	19
豆腐	4	5	3
猪肉	30	28	31

每日采购数量:

	10月9日	10月10日	10月11日
青菜	2	5	2
鱼肉	2	1	2
豆腐	3	1	2
猪肉	1	3	4

请根据运行结果给出每日购物地点建议。

```
price = [5 8 6;20 18 19;4 5 3; 30 28 31];
```

Question assigned to the following page: 6

```
amount = [2 5 2; 2 1 2; 3 1 2; 1 3 4];
title = ["超市(1)", "菜场(2)", "便利店(3)"];
for i = 1:3
    min = 500;
    pos = 0;
    for j = 1:3
        total_cost = sum(price(:,j) .* amount(:,i));
        if total_cost < min
            min = total_cost;
            pos = j;
        end
    end
    disp("10月" + string(i+8) + "日: " + title(pos));
end
```

```
10月9日: 便利店(3)
10月10日: 超市(1)
10月11日: 菜场(2)
```