

EE322 Fall 08 Homework Problem Set 8 (PS08)—Solutions

1. Ch. 5, Problem 3. You only have to have your code print out 10 lines of conversions, not 25.

```
% Problem 1: Text 5.3
% Part a: Yen to USD
Yen_to_USD=0.00910755;
Yen = 0:5:120; % will give 25 lines
disp('Table of conversions, Yen->USD')
fprintf('Yen    USD\n');
for k=1:10 % print only 10 lines, not 25
    fprintf('%3d\t%6.2f\n',Yen(k),Yen(k)*Yen_to_USD);
end
```

Will result in the following to be displayed:

```
Table of conversions, Yen->USD
Yen    USD
  0     0.00
  5     0.05
 10     0.09
 15     0.14
 20     0.18
 25     0.23
 30     0.27
 35     0.32
 40     0.36
 45     0.41
```

```
% Part b: Yen to USD
Euro_to_USD=1.46341;
Euro = 1:2:20; % will give 25 lines
disp('Table of conversions, Euro->USD')
fprintf('Euro    USD\n');
for k=1:10 % print only 10 lines, not 25
    fprintf('%3d\t%6.2f\n',Euro(k),Euro(k)*Euro_to_USD);
end
```

Will result in the following to be displayed:

```
Table of conversions, Euro->USD
Euro    USD
  1     1.46
  3     4.39
  5     7.32
  7    10.24
  9    13.17
 11    16.10
 13    19.02
 15    21.95
 17    24.88
 19    27.80
```

```

% Part c: all conversions
GBP_to_USD=1.83715;
USD=0:2:20;
disp('Table of Conversions')
fprintf('USD    EUR    GBP    Yen\n')
for k=1:length(USD)
fprintf('%3d\t%5.2f\t%5.2f\t%5.1f\n',USD(k),USD(k)/Euro_to_USD,USD(k)/GBP_to_USD,U
SD(k)/Yen_to_USD);
end

```

Will result in the following to be displayed:

```

Table of Conversions
USD    EUR    GBP    Yen
  0    0.00  0.00   0.0
  2    1.37  1.09 219.6
  4    2.73  2.18 439.2
  6    4.10  3.27 658.8
  8    5.47  4.35 878.4
 10    6.83  5.44 1098.0
 12    8.20  6.53 1317.6
 14    9.57  7.62 1537.2
 16   10.93  8.71 1756.8
 18   12.30  9.80 1976.4
 20   13.67 10.89 2196.0

```

2. Ch. 5, Problem 4a, b. Use the *input* command to allow the user to enter the increments in degrees for part a, and to enter the increments and starting temperature in part b.

```

% Problem 2: Text 5.4
% part a:
fprintf('Temperature conversion from deg F to deg Kelvin\n\n')
deltaT=input('What is the temperature increment (degrees F)? ');
Tf=0:deltaT:200;
TR=Tf+459.67;
TK=5/9*TR;
fprintf('deg F    deg K\n')
for k=1:length(Tf)
    fprintf('%7.2f    %7.2f\n',Tf(k),TK(k));
end

```

Will result in the following to be displayed (I input a 50 deg increment):

```

Temperature conversion from deg F to deg Kelvin

What is the temperature increment (degrees F)? : 50
deg F    deg K
  0.00    255.37
 50.00    283.15
100.00    310.93
150.00    338.71
200.00    366.48

```

```

% part b
clear
fprintf('Temperature conversion from deg C to deg Rankine\n\n')
Tc_start=input('What is the starting temp. in the table (degrees C)?: ');
deltaT=input('What is the temperature increment (degrees C)?: ');
TC=Tc_start:deltaT:200;
Tf=9/5*TC+32;
TR=Tf+459.67;
fprintf('deg C          deg R\n')
for k=1:length(Tf)
    fprintf('%7.2f      %7.2f\n',TC(k),TR(k));
end

```

Will result in the following to be displayed (I input a 20 deg increment and a -30 deg starting temp):

```

Temperature conversion from deg C to deg Rankine

What is the starting temp. in the table (degrees C)?: -30
What is the temperature increment (degrees C)?: 20
deg C      deg R
-30.00     437.67
-10.00     473.67
 10.00     509.67
 30.00     545.67
 50.00     581.67
 70.00     617.67
 90.00     653.67
110.00     689.67
130.00     725.67
150.00     761.67
170.00     797.67
190.00     833.67

```

```

% part c
clear
fprintf('Temperature conversion from deg C to deg F\n\n')
Tc_start=input('What is the starting temp. in the table (degrees C)?: ');
deltaT=input('What is the temperature increment (degrees C)?: ');
lines=input('How many temperature conversions will appear in the table?: ');

TC=Tc_start:deltaT:(lines-1)*deltaT;
Tf=9/5*TC+32;
fprintf('deg C          deg F\n')
for k=1:length(Tf)
    fprintf('%7.2f      %7.2f\n',TC(k),Tf(k));
end

```

Will result in the following to be displayed (I input a 10 deg increment, 10 lines in the table, and a -6 deg starting temp):

Temperature conversion from deg C to deg F

What is the starting temp. in the table (degrees C)?: -6

What is the temperature increment (degrees C)?: 10

How many temperature conversions will appear in the table?: 10

deg C	deg F
-6.00	21.20
4.00	39.20
14.00	57.20
24.00	75.20
34.00	93.20
44.00	111.20
54.00	129.20
64.00	147.20
74.00	165.20
84.00	183.20