

***Introduction to Programming Using Python 1st
edition Schneider Solutions Manual***

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Answers

CHAPTER 2

EXERCISES 2.1

1. 12 2. 49 3. .125 4. 23 5. 8 6. -96 7. 2 8. 2
9. 1 10. 3 11. 1 12. 0 13. Not valid 14. Not valid
15. Valid 16. Not valid 17. Not valid 18. Not valid 19. 10
20. 14 21. 16 22. 16 23. 9 24. 8

25. `print((7 * 8) + 5)`

26. `(1 + (2 * 9)) ** 3`

27. `print(.055 * 20)`

28. `15 - (3 * (2 + (3 ** 4)))`

29. `print(17 * (3 + 162))`

30. `(4 + (1 / 2)) - (3 + (5 / 8))`

31.

	x	y
<code>x = 2</code>	2	does not exist
<code>y = 3 * x</code>	2	6
<code>x = y + 5</code>	11	6
<code>print(x + 4)</code>	11	6
<code>y = y + 1</code>	11	7

32.

	bal	inter	withDr
<code>bal = 100</code>	100	does not exist	does not exist
<code>inter = .05</code>	100	.05	does not exist
<code>withDr = 25</code>	100	.05	25
<code>bal += (inter * bal)</code>	105	.05	25
<code>bal = bal - withDr</code>	80	.05	

33. 24 34. 1 8 9 35. 10 36. 225
37. 2 15 38. 5 10 39. The third line should read `c = a + b`.
40. 1,234 should not contain a comma; \$100 should not have a dollar sign; Deposit should begin with a lowercase letter d.
41. The first line should read `interest = 0.05`. 43. 10 45. 7 47. 3.128
49. -2 50. 2 51. 0 52. 1 53. 6 54. 1
55. `cost += 5` 56. `sum *= 2` 57. `cost /= 6` 58. `sum -= 7`
59. `sum %= 2` 60. `cost //= 3`

```

61. revenue = 98456
    costs = 45000
    profit = revenue - costs
    print(profit)

62. costPerShare = 25.625
    numberOfShares = 400
    amount = costPerShare * numberOfShares
    print(amount)

63. price = 19.95
    discountPercent = 30
    markdown = (discountPercent / 100) * price
    price -= markdown
    print(round(price, 2))

64. fixedCosts = 5000
    pricePerUnit = 8
    costPerUnit = 6
    breakEvenPoint = fixedCosts / (pricePerUnit - costPerUnit)
    print(breakEvenPoint)

65. balance = 100
    balance += 0.05 * balance
    balance += 0.05 * balance
    balance += 0.05 * balance
    print(round(balance, 2))

66. balance = 100
    balance = ((1.05) * balance) + 100
    balance = ((1.05) * balance) + 100
    balance *= 1.05
    print(round(balance, 2))

67. balance = 100
    balance *= 1.05 ** 10
    print(round(balance, 2))

68. purchasePrice = 10
    sellingPrice = 15
    percentProfit = 100 * ((sellingPrice - purchasePrice) / purchasePrice)
    print(percentProfit)

69. tonsPerAcre = 18
    acres = 30
    totalTonsProduced = tonsPerAcre * acres
    print(totalTonsProduced)

70. initialVelocity = 50
    initialHeight = 5
    t = 3
    height = (-16 * (t ** 2)) + (initialVelocity * t) + initialHeight
    print(height)

```

```

71. distance = 233
    elapsedTime = 7 - 2
    averageSpeed = distance / elapsedTime
    print(averageSpeed)

72. miles = 23695 - 23352
    gallonsUsed = 14
    milesPerGallon = miles / gallonsUsed
    print(milesPerGallon)

73. gallonsPerPersonDaily = 1600
    numberOfPeople = 315000000
    numberOfDays = 365
    gallonsPerYear = gallonsPerPersonDaily * numberOfPeople * numberOfDays
    print(gallonsPerYear)

74. pizzasPerSecond = 350
    secondsInDay = 60 * 60 * 24
    numPerDay = pizzasPerSecond * secondsInDay
    print(numPerDay))

75. numberOfPizzarias = 70000
    percentage = .12
    numberOfRestaurants = numberOfPizzarias / percentage
    print(round(numberOfRestaurants))

76. pop2000 = 281
    pop2050 = 404
    percentGrowth = round(100 * ((pop2050 - pop2000) / pop2000))
    print(round(percentGrowth))

77. nationalDebt = 1.68e+13
    population = 3.1588e+8
    perCapitaDebt = nationalDebt / population
    print(round(perCapitaDebt))

78. cubicFeet = (5280 ** 3)
    caloriesPercubicFoot = 48600
    totalNumberOfCalories = cubicFeet * caloriesPercubicFoot
    print(totalNumberOfCalories))

```

EXERCISES 2.2

1. Python	2. Hello	3. Ernie	4. Bert	5. "o"	6. "o"
7. "h"	8. "n"	9. "Pyt"	10. []	11. "Py"	12. "Thon"
13. "h"	14. "ytho"	15. "th"	16. "th"	17. "Python"	19. 2
20. -1	21. -1	23. 10	24. 3	25. 2	26. 5
27. -1	28. -1	29. 3	30. "BRRR"	31. 8 ball	32. 4
33. "8 BALL"		35. "hon"	37. "The Artist"		39. 5

40. "King Lear" 41. 7 42. 6 43. 2 45. "King Kong"
46. 1 47. 12
 MUNICIPALITY
 City
 6 48. 9
 Microsoft
 os
 5
49. flute 50. Acute 51. Your age is 21. 52. Fred has 2 children.
53. A ROSE IS A ROSE IS A ROSE 54. PYTHON 55. WALLAWALLA
56. murmur 57. goodbye 58. eighth 59. Mmmmmmm.
60. ***YES*** 61. a b 62. spamspamspam
63. 76 trombones 64. 5.5 65. 17 66. 8 67. 8 68. 8
69. The Great 9 70. The Dynamic Duo 71. s[:-1] 72. s[2:]
73. -8 74. 7 75. True 76. True 77. True 78. True
79. 234-5678 should be surrounded with quotation marks.
80. I came to Casablanca for the waters. should be surrounded by quotation marks.
81. *for* is a reserved word and cannot be used as a variable name.
82. A string cannot be concatenated with a number. The second line should be written
`print("Age: " + str(age))`
83. The string should be replaced with "Say it ain't so."
84. Should be written `print('George "Babe" Ruth')`
85. **Upper** should be changed to **upper**.
86. **lower** should be changed to `lower()`
87. A string cannot be concatenated with a number.
88. The characters in a number cannot be indexed.
89. *find* is not an allowable method for a number; only for a string.
90. The `len` function can not be applied to numbers.
91. The string "Python" does not have a character of index 8.
92. `show[9]` is not valid since the string "Spamalot" does not have a character of index 9.

- ```

93. ## Display an inventor's name and year of birth.
 firstName = "Thomas"
 middleName = "Alva"
 lastName = "Edison"
 yearOfBirth = 1847
 print(firstName, middleName, lastName + ', ', yearOfBirth)

94. item = "ketchup"
 regularPrice = 1.8
 discount = 0.27
 print(regularPrice - discount) + " is the sale price of " + item + "."

95. ## Display a copyright statement.
 publisher = "Pearson"
 print("(c)", publisher)

96. prefix = "Fore"
 print(prefix + "warned is " + prefix + "armed.")

97. ## Calculate the distance from a storm.
 prompt = "Enter number of seconds between lightning and thunder: "
 numberOfSeconds = float(input(prompt))
 distance = numberOfSeconds / 5
 distance = round(distance, 2)
 print("Distance from storm:", distance, "miles.")

```

```

Enter number of seconds between lightning and thunder: 1.25
Distance from storm: 0.25 miles.

```

- ```

98. ## Calculate training heart rate.
    age = float(input("Enter your age: "))
    rhr = int(input("Enter your resting heart rate: "))
    thr = .7 * (220 - age) + (.3 * rhr)
    print("Training heart rate:", round(thr), "beats/minute.")

```

```

Enter your age: 20
Enter your resting heart rate: 70
Training heart rate: 161 beats/min.

```

- ```

99. ## Calculate weight loss during a triathlon.
 cycling = float(input("Enter number of hours cycling: "))
 running = float(input("Enter number of hours running: "))
 swimming = float(input("Enter number of hours swimming: "))
 pounds = (200 * cycling + 475 * running + 275 * swimming) / 3500
 pounds = round(pounds, 1)
 print("Weight loss:", pounds, "pounds")

```

```

Enter number of hours cycling: 2
Enter number of hours running: 3
Enter number of hours swimming: 1
Weight loss: 0.6 pounds

```

```

100. ## Calculate cost of electricity.
wattage = int(input("Enter wattage: "))
hoursUsed = float(input("Enter number of hours used: "))
price = float(input("Enter price per kWh in cents: "))
cost = (wattage * hoursUsed) / (1000 * price)
print("Cost of electricity:", '$' + str(round(cost, 2)))

```

```

Enter wattage: 100
Enter number of hours used: 720
Enter price per kWh in cents: 11.76
Cost of electricity: $6.12

```

```

101. ## Calculate percentage of games won by a baseball team.
name = input("Enter name of team: ")
gamesWon = int(input("Enter number of games won: "))
gamesLost = int(input("Enter number of games lost: "))
percentageWon = round(100 * (gamesWon) / (gamesWon + gamesLost), 1)
print(name, "won", str(percentageWon) + '%', "of their games.")

```

```

Enter name of team: Yankees
Enter number of games won: 68
Enter number of games lost: 52
Yankees won 56.7% of their games.

```

```

102. ## Calculate price/earnings ratio.
earningsPerShare = float(input("Enter earnings per share: "))
pricePerShare = float(input("Enter price per share: "))
PERatio = pricePerShare / earningsPerShare
print("Price-to-Earnings ratio:", PERatio)

```

```

Enter earnings per share: 5.25
Enter price per share: 68.25
Price-to-Earnings ratio: 13.0

```

```

103. ## Determine the speed of a skidding car.
distance = float(input("Enter distance skidded (in feet): "))
speed = (24 * distance) ** .5
speed = round(speed, 2)
print("Estimated speed:", speed, "miles per hour")

```

```

Enter distance skidded: 54
Estimated speed: 36.0 miles per hour

```

```

104. ## Convert a percent to a decimal.
percentage = input("Enter percentage: ")
percent = float(percent[:-1]) / 100
print("Equivalent decimal:", percent)

```

```

Enter percentage: 125%
Equivalent decimal: 1.25

```

```
105. ## Convert speed from kph to mph.
speedInKPH = float(input("Enter speed in KPH: "))
speedInMPH = speedInKPH * .6214
print("Speed in MPH:", round(speedInMPH, 2))
```

```
Enter speed in KPH: 112.6541
Speed in MPH: 70.00
```

**Note:** The world's fastest animal, the cheetah, can run at the speed of 112.6541 kilometers per hour.

```
106. ## Server's tip.
bill = float(input("Enter amount of bill: "))
percentage = float(input("Enter percentage tip: "))
tip = (bill * percentage) / 100
print("Tip:", '$' + str(round(tip, 2)))
```

```
Enter amount of bill: 21.50
Enter percentage tip: 18
Tip: $3.87
```

```
107. ## Calculate equivalent CD interest rate for municipal bond rate.
taxBracket = float(input("Enter tax bracket (as decimal): "))
bondRate = float(input("Enter municipal bond interest rate (as %): "))
equivCDRate = bondRate / (1 - taxBracket)
print("Equivalent CD interest rate:", str(round(equivCDRate, 3)) + '%')
```

```
Enter tax bracket (as decimal): .37
Enter municipal bond interest rate (as %): 3.26
Equivalent CD interest rate: 5.175%
```

```
108. ## Marketing terms.
purchasePrice = float(input("Enter purchase price: "))
sellingPrice = float(input("Enter selling price: "))
markup = sellingPrice - purchasePrice
percentageMarkup = 100 * (markup / purchasePrice)
profitMargin = 100 * (markup / sellingPrice)
print("Markup:", '$' + str(round(markup, 2)))
print("Percentage markup:", str(round(percentageMarkup, 2)) + '%')
print("Profit margin:", str(round(profitMargin, 2)) + '%')
```

```
Enter purchase price: 215
Enter selling price: 645
Markup: $430.0
Percentage markup: 200.0%
Profit margin: 66.67%
```

```
109. ## Analyze a number.
number = input("Enter number: ")
decimalPoint = number.find('.')
print(decimalPoint, "digits to left of decimal point")
print(len(number) - decimalPoint - 1, "digits to right of decimal point")
```

```
Enter number: 76.543
2 digits to left of decimal point
3 digits to right of decimal point
```

```

110. ## Word replacement.
 sentence = input("Enter a sentence: ")
 word1 = input("Enter word to replace: ")
 word2 = input("Enter replacement word: ")
 location = sentence.find(word1)
 newSentence = sentence[:location] + word2 + sentence[location + len(word1):]
 print(newSentence)

```

```

Enter a sentence: Live long and prosper.
Enter word to replace: prosper
Enter replacement word: proper
Live long and proper.

```

```

111. ## Convert a number of months to years and months.
 numberOfMonths = int(input("Enter number of months: "))
 years = numberOfMonths // 12
 months = numberOfMonths % 12
 print(numberOfMonths, "months is", years, "years and", months, "months.")

```

```

Enter number of months: 234
234 months is 19 years and 6

```

```

112. ## Convert lengths.
 numberOfInches = int(input("Enter number of inches: "))
 feet = numberOfInches // 12
 inches = numberOfInches % 12
 print(numberOfInches, "inches equals", feet, "feet and", inches, "inches.")

```

```

Enter number of inches: 185
185 inches is 15 feet and 5 inches.

```

## EXERCISES 2.3

- |                             |                      |                                        |                    |
|-----------------------------|----------------------|----------------------------------------|--------------------|
| 1. Bon Voyage!              | 2. Price: \$23.45    | 3. Portion: 90%                        | 4. Python          |
| 5. 1 x 2 x 3                | 6. tic-tac-toe       | 7. father-in-law                       | 8. father-in-law   |
| 9. T-shirt                  | 10. spam and eggs    | 11. Python                             | 12. on-site repair |
| 13. Hello<br>World!         | 14. Hello<br>World!  | 15. One      Two      Three      Four  |                    |
| 16. 1          2          3 | 17. NUMBER    SQUARE | 18. COUNTRY    LAND AREA               |                    |
| Detroit Lions               | 2          4         | India    2.5 million sq km             |                    |
| Indianapolis    Colts       | 3          9         | China    9.6 million sq km             |                    |
| 19. Hello<br>Hello          | World!<br>World!     | 20. STATE                      CAPITAL | 21. 01234567890    |
|                             |                      | North Dakota    Bismarck               | A   B   C          |
|                             |                      | South Dakota    Pierre                 |                    |

22. 0123456789012345      23. 01234567890123456      24. 01234567890  
     one two three              one two three              A B C
25. 0123456789      26. 0123456789  
     12.30%              1,234  
     123.0%              1,234  
     1,230.00%              1,234
27. \$1,234.57      28. 1,234              29. 1              30. #1,234.00
31. Language    Native speakers    % of World Pop.  
     Mandarin    935,000,000        14.10%  
     Spanish      387,000,000        5.85%  
     English      365,000,000        5.52%
32. Major              Percent of Students  
     Biology              6.2%  
     Psychology          5.4%  
     Nursing              4.7%
33. Be yourself - everyone else is taken.
34. Plan first, code later
35. Always look on the bright side of life.
36. And now for something completely different.
37. The product of 3 and 4 is 12.
38. The chances of winning the Powerball Lottery are 1 in 175,223,510.
39. The square root of 2 is about 1.4142.
40. Pi is approximately 3.14159.
41. In a randomly selected group of 23 people, the probability is 0.51 that 2 people have the same birthday.
42. The cost of Alaska was about \$10.86 per square mile.
43. You miss 100% of the shots you never take. - Wayne Gretsky
44. 12% of the members of the U.S. Senate are from New England.
45. 22.28% of the UN nations are in Europe.
46. The area of Alaska is 17.5% of the area of the U.S.
47. abracadabra
48. When you have nothing to say, say nothing.
49. Be kind whenever possible. It is always possible. - Dalai Lama
50. If you can dream it, you can do it. - Walt Disney

51. Yes      52. Yes

53. ## Calculate a server's tip.  
`bill = float(input("Enter amount of bill: "))  
percentage = float(input("Enter percentage tip: "))  
tip = (bill * percentage) / 100  
print("Tip: ${0:.2f}".format(tip))`

```
Enter amount of bill: 45.50
Enter percentage tip: 20
Tip: $9.10
```

54. ## Calculate income.  
`revenue = eval(input("Enter revenue: "))  
expenses = eval(input("Enter expenses: "))  
netIncome = revenue - expenses  
print("Net income: ${0:,.2f}".format(netIncome))`

```
Enter revenue: 550000
Enter expenses: 410000
Net income: $140,000.00
```

55. ## Calculate a new salary.  
`beginningSalary = float(input("Enter beginning salary: "))  
raisedSalary = 1.1 * beginningSalary  
cutSalary = .9 * raisedSalary  
percentChange = (cutSalary - beginningSalary) / beginningSalary  
print("New salary: ${0:,.2f}".format(cutSalary))  
print("Change: {0:.2%}".format(percentChange))`

```
Enter beginning salary: 42500
New salary: $42,075.00
Change: -1.00%
```

56. ## Calculate a change in salary.  
`beginningSalary = float(input("Enter beginning salary: "))  
raisedSalary = 1.05 * 1.05 * 1.05 * beginningSalary  
percentChange = (raisedSalary - beginningSalary) / beginningSalary  
print("New salary: ${0:,.2f}".format(raisedSalary))  
print("Change: {0:.2%}".format(percentChange))`

```
Enter beginning salary: 35000
New salary: $40,516.88
Change: 15.76%
```

57. ## Calculate a future value.  
`p = float(input("Enter principal: "))  
r = float(input("Enter interest rate (as %): "))  
n = int(input("Enter number of years: "))  
futureValue = p * (1 + (r / 100)) ** n  
print("Future value: ${0:,.2f}".format(futureValue))`

```
Enter principal: 2500
Enter interest rate (as %): 3.5
Enter number of years: 2
Future value: $2,678.06
```

```

58. ## Calculate a present value.
 f = float(input("Enter future value: "))
 r = float(input("Enter interest rate (as %): "))
 n = int(input("Enter number of years: "))
 presentValue = f / ((1 + (r / 100)) ** n)
 print("Present value: ${0:,.2f}".format(presentValue))

```

```

Enter future value: 10000
Enter interest rate (as %): 4
Enter number of years: 6
Present value: $7,903.15

```

## EXERCISES 2.4

1. Pennsylvania Hawaii
2. New Jersey, Arizona
3. Alaska Hawaii
4. 50
5. Delaware Delaware
6. 0
7. 48
8. 22
9. Ohio
10. Hawaii Hawaii
11. DELAWARE
12. Puerto Rico
13. ['Puerto Rico']
14. Georgia
15. United States
16. 48
17. ['New Jersey', 'Georgia', 'Connecticut']
18. ['Pennsylvania', 'New Jersey', 'Georgia']
19. ['Oklahoma', 'New Mexico', 'Arizona']
20. ['New Mexico', 'Arizona', 'Alaska']
21. ['Delaware', 'Pennsylvania', 'New Jersey', 'Georgia']
22. ['Delaware']
23. ['Arizona', 'Alaska', 'Hawaii']
24. ['Alaska', 'Hawaii']
25. []
26. []
27. Georgia
28. Arizona
29. ['Alaska', 'Hawaii']
30. Massachusetts
31. New Mexico
32. New Jersey
33. 10
34. 30
35. 0
36. 50
37. 48
38. 46
39. ['Hawaii', 'Puerto Rico', 'Guam']
40. ['Alaska', 'Hawaii', ['Puerto Rico', 'Guam']]
41. ['Hawaii', 'Puerto Rico', 'Guam']
42. ['Arizona', "Seward's Folly", 'Hawaii']
43. ['Delaware', 'Commonwealth of Pennsylvania', 'New Jersey']
44. ['Delaware', 'Commonwealth of Pennsylvania', 'Pennsylvania']
45. ['New', 'Mexico']
46. ['Jersey', 'New', 'Mexico']
- ['New', 'Jersey']

47. Pennsylvania, New Jersey, Georgia      48. ['Jersey', 'New', 'Mexico']
49. 8      50. 8      51. 100      52. 7      53. 0      54. 98
55. Largest Number: 8      56. Smallest Number: 0      57. Total: 16
58. Average 4.0
59. This sentence contains five words.  
This sentence contains six different words.
60. ['all', 'for', 'one']      61. Babbage, Charles      62. Guido Rossum
63. Middle Name: van      64. Python      65. When in the course of human events
66. Less is more.      67. editor-in-chief      68. merry-go-round
69. e\*\*pluribus\*\*unum      70. ['around', 'the', 'clock']
71. ['New York', 'NY', 'Empire State', 'Albany']
72. ['France', 'England', 'Spain']      73. ['France', 'England', 'Spain']
74. a bcd      75. programmer
76. Live let live.      77. Follow your own star.
78. Largest Number: 8  
Length: 4  
Total: 16  
Number list: [6, 2, 8, 0]
79. 987-654-3219      80. Dairy      81. [3, 9, 6]      82. (-5, 17, 123)
83. each      84. (0, 2, 3)      85. ['soprano', 'tenor', 'alto', 'bass']
86. ['soprano', 'tenor', 'alto', 'bass']      87. ['gold', 'silver', 'bronze']
88. ['gold', 'silver', 'bronze']      89. murmur
90. [0, 0, 0, 0]      91. ('Happy', 'Sneezy', 'Bashful')
92. ['Nina', 'Pinta']      93. 1      94. 2
95. Index out of range. The list does not have an item of index 3.
96. The statement `word[1] = 'p'` is not valid since strings are immutable.
97. The join method only can be applied to a list consisting entirely of strings.
98. The tuple does not have an item of index 4.
99. The second line is not valid. Items in a tuple cannot be reassigned values directly.
100. Tuples do not support the *append* method.

```
101. ## Count the number of words in a sentence.
sentence = input("Enter a sentence: ")
L = sentence.split(" ")
print("Number of words:", len(L))
```

```
Enter a sentence: This sentence contains five words.
Number of words: 5
```

```
102. ## Analyze a sentence
sentence = input("Enter a sentence: ")
L = sentence.split()
print("First word:", L[0])
print("Last word:", L[-1][:-1])
```

```
Enter a sentence: Reach for the stars.
First word: Reach
Last word: stars
```

```
103. ## Display a name.
name = input("Enter a 2-part name: ")
L = name.split()
print("{0:s}, {1:s}".format(L[1], L[0]))
```

```
Enter a 2-part name: Charles Babbage
Revised form: Babbage, Charles
```

```
104. ## Extract the middle name from a three-part name.
name = input("Enter a 3-part Name: ")
L = name.split()
print("Middle Name:", L[1])
```

```
Enter a 3-part name: Augusta Ada Byron
Middle name: Ada
```

## PROGRAMMING PROJECTS CHAPTER 2

```
1. ## Make change for an amount of less than one dollar.
amount = int(input("Enter amount of change: "))
remainder = amount
quarters = remainder // 25
remainder %= 25
dimes = remainder // 10
remainder %= 10
nickels = remainder // 5
remainder %= 5
cents = remainder
print("Quarters:", quarters, end=" ")
print("\tDimes:", dimes)
print("Nickels:", nickels, end=" ")
print("\tCents:", cents)
```

```
Enter amount of change: 93
Quarters: 3 Dimes: 1
Nickels: 1 Cents: 3
```

2. ## Determine the monthly payment for a car loan.
- ```
loanAmount = float(input("Enter amount of loan: "))
interestRate = float(input("Enter interest rate (%): "))
numYears = float(input("Enter number of years: "))
i = interestRate / 1200
monthlyPayment = (i / (1 - ((1 + i) ** (-12 * numYears)))) * loanAmount
print("Monthly payment: ${0:,.2f}".format(monthlyPayment))
```

```
Enter amount of loan: 12000
Enter interest rate (%): 6.4
Enter number of years: 5
Monthly payment: $234.23
```

3. faceValue = float(input("Enter face value of bond: "))
 couponRate = float(input("Enter coupon interest rate: "))
 interest = faceValue * couponRate
 marketPrice = float(input("Enter current market price: "))
 yrsUntilMaturity = float(input("Enter years until maturity: "))
 a = (faceValue - marketPrice) / yrsUntilMaturity
 b = (faceValue + marketPrice) / 2
 ytm = (interest + a) / b
 print("Approximate YTM: {0:.2%}".format(ytm))

```
Enter face value of bond: 1000
Enter coupon interest rate: .04
Enter current market price: 1180
Enter years until maturity: 15
Approximate YTM: 2.57%
```

4. ## Determine the unit price of a purchase.
- ```
price = float(input("Enter price of item: "))
print("Enter weight of item in pounds and ounces separately.")
pounds = float(input("Enter pounds: "))
ounces = float(input("Enter ounces: "))
weightInOunces = 16 * pounds + ounces
pricePerOunce = price / weightInOunces
print("Price per ounce: ${0:.2f}".format(pricePerOunce))
```

```
Enter price of item: 25.50
Enter weight of item in pounds and ounces separately.
Enter pounds: 1
Enter ounces: 9
Price per ounce: $1.02
```

5. ## Describe the distribution in a stock portfolio.
- ```
spy = float(input("Enter amount invested in SPY: "))
qqq = float(input("Enter amount invested in QQQ: "))
eem = float(input("Enter amount invested in EEM: "))
vxx = float(input("Enter amount invested in VXX: "))
total = spy + qqq + eem + vxx
print()
print("{0:6s}{1:>12s}".format("ETF", "PERCENTAGE"))
print("-" * 18)
```

```

print("{0:6s}{1:10.2%}".format("SPY", spy / total))
print("{0:6s}{1:10.2%}".format("QQQ", qq / total))
print("{0:6s}{1:10.2%}".format("EEM", eem / total))
print("{0:6s}{1:10.2%}".format("VXX", vxx / total))
print()
print("{0:s}: ${1:,.2f}".format("TOTAL AMOUNT INVESTED", total))

```

```

Enter amount invested in SPY: 876543.21
Enter amount invested in QQQ: 234567.89
Enter amount invested in EEM: 345678.90
Enter amount invested in VXX: 123456.78

```

ETF	PERCENTAGE
SPY	55.47%
QQQ	14.84%
EEM	21.87%
VXX	7.81%

```
TOTAL AMOUNT INVESTED: $1,580,246.78
```

6. ## Convert a measurement from miles, yards, feet, ## and inches, to a metric one in meters, kilometers, ## and centimeters.
- ```

miles = float(input("Enter number of miles: "))
yards = float(input("Enter number of yards: "))
feet = float(input("Enter number of feet: "))
inches = float(input("Enter number of inches: "))
Step #1: Add up given measurements into inches
totalInches = inches + 12 * feet + 36 * yards + 63360 * miles
Step #2: Convert total inches into total meters
totalMeters = totalInches / 39.3700787
Step #3: Compute kilometers, whole meters, and centimeters
Step 3a: compute # of kilometers, subtract from meters
kilometers = int(totalMeters / 1000)
totalMeters = totalMeters - 1000 * kilometers
meters = int(totalMeters)
centimeters = 100 * (totalMeters - meters)
centimeters = round(centimeters, 1)
print("Metric length:")
print(" ", kilometers, "kilometers")
print(" ", meters, "meters")
print(" ", centimeters, "centimeters")

```

```

Enter number of miles: 5
Enter number of yards: 20
Enter number of feet: 2
Enter number of inches: 4
Metric length:
 8 kilometers
 65 meters
 73.5 centimeters

```