

1. Explain why each of the following names does or does not seem like a good variable name to represent a state sales tax rate.

- a. `stateTaxRate`, Good easy to understand + camelCase
- b. `txRt`, bad not maintainable in legacy code base
- c. `t`, bad not maintainable in legacy code base
- d. `stateSalesTaxRateValue`, Good easy to understand and camelCase
- e. `state tax rate`, bad can't have spaces
- f. `taxRate`, good easy to read + camelCase
- g. `1TaxRate`, bad can't start with number
- h. `moneyCharged`, good readable and camelCase

2. If `productCost` and `productPrice` are numeric variables, and `productName` is a string variable, which of the following statements are valid assignments? If a statement is not valid, explain why not.

- a. `productCost = 100` valid
- b. `productPrice = productCost`
valid
- c. `productPrice =`
`productName` not valid, int
cannot be assigned to string
- d. `productPrice = "24.95"` not
valid can't assign int to
string

- e. $15.67 = \text{productCost}$ not valid, must declare variable then value
- f. $\text{productCost} = \$1,35.52$ not valid no commas allowed
- g. $\text{productCost} = \text{productPrice} - 10$ valid
- h. $\text{productName} = \text{"mouse pad"}$ valid
- i. $\text{productCost} + 20 = \text{productPrice}$ not valid, must declare variable then value
- j. $\text{productName} = 3\text{-inch nails}$ not valid needs " or '
- k. $\text{productName} = 43$ not valid type error
- l. $\text{productName} = \text{"44"}$ valid

- m. `"99" = productName` not valid, must declare variable then value
- n. `productName = brush` not valid needs `'` or `'`
- o. `battery = productName` not valid no `'` and must be variable then value. But this would technically work, setting a new variable named battery to the value of product name
- p. `productPrice = productPrice` not valid unless `productPrice` is already defined. But still I'm not sure why you would want to do this
- q. `productName = productCost` not valid type error

3. Assume that `speed = 10` and `miles = 5`. What is the value of each of the following expressions?

- a. `speed + 12 - miles * 2 = 12`
- b. `speed + miles * 3 = 25`

c. $(\text{speed} + \text{miles}) * 3 = 45$

d. $\text{speed} + \text{speed} * \text{miles} + \text{miles} = 65$

e. $(10 - \text{speed}) + \text{miles} / \text{miles} = 1.0$