CRT - Mastery Project

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1.

- a) List four legal identifier names.
  - myString
  - numBeads
  - myInt
  - myBoolean
- b) List four illegal identifier names and explain why each is illegal
  - 1stLine
    Reason:Identifiers cannot start with a letter
  - Double
    Reason: This is a reserved keyword
  - Variable-1
    Reason: The character "-" is an illegal keyword
  - Variable 1
    Reason: The character " " is an illegal keyword

2.

- a) In two statements, declare a variable named numBeads and assign it the value 5.

```
int numBeads;
numBeads = 5;
```

- b) In one statement, declare a variable named numBeads and assign it the value 5.

```
int numBeads = 5;
```

3.

- a) What is the final value of yourNumber after the last statement executes?

```
int myNumber = 5;
int yourNumber = 4;
myNumber = yourNumber * 2;
yourNumber = myNumber + 5;
```

Final answer: yourNumber = 13

- b) What is the final value of yourNumber after the last statement executes?

```
int myNumber;
 int yourNumber = 4;
 myNumber = yourNumber + 7;
```

yourNumber = myNumber;

Final answer: yourNumber = 11

4. Determine the appropriate data type for each of the following values:

- a) The number of basketballs in a department store.
  Data Type: Int
  Reasoning: You can only have a whole number of basketballs, no half of a ball.

- b) The price of a basketball.
  Data Type: Double
  Reasoning: Prices involve decimals, as do doubles.

- c) The number of players on a basketball team.
  Data Type: Int
  Reasoning: You can only have a whole human.

- d) The average age of the players on a basketball team.
  Data Type: Double
  Reasoning: Average age could include decimals

- e) Whether a basketball player has received a jersey or not.
  Data Type: Boolean
  Reasoning: A player has either received a jersey, or hasn't.

- f) The first initial of a basketball player's first name.
  Data Type: Char
  Reasoning: A Char stores a single letter

5.

- a) What is the difference between a primitive data type and an abstract data type?

Primitive Data Type: A variable that is defined with a primitive data type stores a single piece of data. Examples: int, double, char, boolean.

Abstract Data Type: A data type that can store data and methods

- b) What is the difference between a class and an object?
  Class: Abstract data type.
  An object: A variable declared with a class.