S19 Java Arrays Activity

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1. Which of the following choices is the correct/preferred syntax for declaring an array of ten primitive integers? Choose the best answer. (1 pt)
    a. int a[10];
    b. int[] a = new int[10];
    c. int a[10] = new int[10];
    d. int[10] a = new int[10];

2. Write Java code that declares an array variable named `data` with the elements 7, -1, 13, 24, and 6. Use only one statement to declare and initialize the array. (2 pt)

3. What Java expression should be used to access the first element of an array of integers called `numbers`? (1 pt)

4. What Java expression should be used to access the last element of `numbers`, assuming it contains 10 elements? (1 pt)

5. What Java expression can be used to access the last element of `numbers`, regardless of its length? (2 pt)

6. Write Java code that creates an array of primitive integers named `nums` of size 6 with the following elements: {25, 1, -1, 34, 33, 19} (2 pt)

7. Write Java code that creates an array of primitive integers named `odds` and stores all odd numbers between -6 and 38 using a for loop. (Your code will populate the array.) Your code should also enable the array's size to be exactly large enough to store the numbers. (You will not put a number for the size, your code will determine the number.) (5 pt)

S19 Java Arrays Activity

8. What elements would the array `numbers` contain after the following code is executed? (Write the elements in the array format: {0, 1, 2, …}) (8 pt)

```
int[] numbers = new int[8];
numbers[1] = 4;
numbers[4] = 99;
numbers[7] = 2;
int x = numbers[1];
numbers[x] = 44;
numbers[numbers[7]] = 11;
```

Answer: _____

9. Fill in the `data[]` array with the values that would be stored after the code executes: (8 pt)

```
int[] data = new int[8];
data[0] = 3;
data[7] = -18;
data[4] = 5;
data[1] = data[0];
int x = data[4];
data[4] = 6;
data[x] = data[0] * data[1];
```

data[0]	
data[1]	
data[2]	
data[3]	
data[4]	
data[5]	
data[6]	
data[7]	

10. Write Java code that uses a for loop to print each element of an array named `data` that contains five primitive integers. For example, if your array contains the elements {14, 5, 27, -3, 2598}, then your code should produce output similar to this: (5 pt)

```
data[0] is 14
data[1] is 5
data[2] is 27
data[3] is -3
data[4] is 2598
```

Hint: let your loop do the work with variables!

S19 Java Arrays Activity

11. Given the following: (10 pts)

```
int i = 3;
int[] arr = {10, 15, 7, 20, 11, 2};
int x = -1;
int y = 100;
```

Show the values in `x` and `y` after executing each of the following: *(show values for both even if either are not changed)*

a. `x = arr[3];` x = _____ y = _____

b. `x = 2 * arr[0];` x = _____ y = _____

c. `x = arr[1] + arr[2];` x = _____ y = _____

d.
```
x = arr[1] + i;
y = x + arr[5];
```
x = _____ y = _____

e.
```
x = arr[i] + 1;
y = arr[i + 1];
```
x = _____ y = _____

12. Given the following array:

```
int[] a = new int[10];
```

Write a loop in Java code to do each of the following: (10 pt)

a. Add 1 to every element of `a`.

b. Count the number of negative numbers in `a`.

c. Create a new array `b` which is the same size as `a`, and copy all the elements from `a` into `b`.

d. Print the elements of `a` in reverse order.

e. Count the number of elements in `a` that have values between 10 and 20, inclusive.