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## AP CS A / UIL Java - DATA TYPE SAMPLE QUESTIONS

1. Which of the following could fill <\*1> without causing a compile error?

<\*1> x = 89;

- I. int
- II. byte
- III. short
- IV. long
- V. double

- a. I only
- b. I and II only
- c. I, II, and IV only
- d. I, II, III, and IV only
- e. I, II, III, IV, and V

2. Which of the following could fill <\*1> without causing a compile error?

<\*1> x = 160;

- I. int
- II. byte
- III. short
- IV. long
- V. double

- a. I only
- b. I and II only
- c. I, II, and IV only
- d. I, III, IV, and V only
- e. I, II, III, IV, and V

3. Which of the following could fill <\*1> without causing a compile error?

<\*1> x = 32799;

- I. int
- II. byte
- III. short
- IV. long
- V. double

- a. I only
- b. I and II only
- c. I, II, and IV only
- d. I, III, IV, and V only
- e. I, IV, and V only

## AP CS A / UIL Java - RECURSION SAMPLE QUESTIONS

1. 

```
public void f(int a, int b)
{
    if (a/b != 0)
        f(a/b,b);
    System.out.print(a % b);
}
```

Given the method above, what is printed by the call `f(4,2)` ?

- a. 221
- b. 201
- c. 3
- d. 100
- e. 101

2. 

```
public void f(int a, int b)
{
    if (a/b != 0)
        f(a/b,b);
    System.out.print(a % b);
}
```

Given the method above, what is printed by the call `f(5,2)` ?

- a. 221
- b. 201
- c. 3
- d. 100
- e. 101

3. 

```
public void f(int a, int b)
{
    if (a/b != 0)
        f(a/b,b);
    System.out.print(a % b);
}
```

Given the method above, what is printed by the call `f(3,7)` ?

- a. 221
- b. 201
- c. 3
- d. 100
- e. 101

## AP CS A / UIL Java - SORT / SEARCH SAMPLE QUESTIONS

17. If a search value exists in a sorted list of 3000 items, what is the *maximum* number of comparisons that may be needed to find the search value using a binary search?

- a. 11
- b. 8
- c. 12
- d. 10
- e. 9

18. If a search value exists in a sorted list of 1000 items, what is the *maximum* number of comparisons that may be needed to find the search value using a binary search?

- a. 11
- b. 8
- c. 12
- d. 10
- e. 9

19. How many times will method `go()` be called given the call `check( 10 )` ?

```
public static void check( int n )
{
    for( int i = 0; i < n; i++ )
        for( int j = 0; j < n; j++ )
            go( i * j );
}
```

- a. 100
- b. 55
- c. 45
- d. 90
- e. 54

## AP CS PRINCIPLES - PSUEDOCODE SAMPLE QUESTIONS

The psuedocode used in this M/C review is similar to Scratch, python, and the psuedocode used on the AP CS Principles exam.

Consult the quick reference on the AP CS Principles practice exam.  
For the AP CSP psuedocode, `<-` is the assignment operator [ = ].

1. What is output by the following psuedoccode?

```
c <- 30
repeat until c < 10
  c <- c - 5
display c
```

- A. 30
- B. 20
- C. 10
- D. 5
- E. 0

2. What is output by the following psuedoccode?

```
c <- 0
repeat until ( c > 15 )
{
  c <- c + 4
}
display( c )
```

- A. 18
- B. 20
- C. 12
- D. 16
- E. 0

10. What is output by the following psuedocode?

```
c <- 0
repeat until ( c > 10 )
  c <- c + 3
display c
```

- A. 12
- B. 9
- C. 10
- D. 6
- E. 0

48. What is the ouput of the code segment below?

```
procedure go( x )
{
  if( x mod 2 == 0 )
    return 1
  return 2
}

display( go( 8 ) )
```

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

49. What is the ouput of the code segment below?

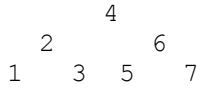
```
procedure go( x )
{
  if( x > 5 )
    return 1
  if( x > 2 )
    return 2
  return 3
}

display( go( 8 ) )
```

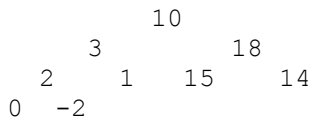
- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

## DATA STRUCTURES / UIL - SAMPLE QUESTIONS

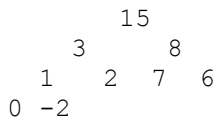
1. Give the tree shown below, which of the following data structures best describes the tree?



- a. binary tree
  - b. max-heap
  - c. binary search tree
  - d. min-heap
  - e. stack
2. Give the tree shown below, which of the following data structures best describes the tree?



- a. binary tree
  - b. max-heap
  - c. binary search tree
  - d. min-heap
  - e. stack
3. Give the tree shown below, which of the following data structures best describes the tree?



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