

1. What is output by the code below?

```
System.out.println( Math.pow( Math.sqrt(16),3) );
```

- a. 90.0
- b. 64.0
- c. 81.0
- d. 91.0
- e. 27.0

2. What is output by the code below?

```
System.out.println( Math.round( 10 / 4) );
```

- a. 2
- b. 3
- c. 3.0
- d. 2.0
- e. 4

3. What is output by the code below?

```
System.out.println( Math.round(10.0 /4) );
```

- a. 2
- b. 3
- c. 3.0
- d. 2.0
- e. 2.5

4. What is output by the code below?

```
System.out.println( Math.max(Math.min(9,5),11) );
```

- a. 0
- b. 16
- c. 11
- d. 14
- e. 9

5. What is the output?

```
int x = 40;  
if( x >= 20 )  
    out.print("1");  
out.print("2");
```

- a. 1
- b. 12
- c. 123
- d. 23
- e. 13

6. What is the output?

```
int a = 40;  
if(a>=20)  
    out.print("1");  
if(a>=50)  
    out.print("2");  
out.print("3");
```

- a. 123
- b. 12
- c. 13
- d. 3
- e. 23

7. What is returned by the call `go(9)` ?

```
public static int go( int a )
{
    int ans = 0;
    if(a>=0)
    {
        if(a>=1)
            ans += 1;
        ans += 2;
    }
    ans += 3;
    return ans;
}
```

- a. 1
- b. 2
- c. 3
- d. 4
- e. 6

8. Consider the following code segment.

```
String s = "dogfood";
System.out.println( s.substring(3).length() );
```

- a. 3
- b. 2
- c. -1
- d. 4
- e. 5

9. Consider the following code segment.

```
String s = "dogfood";
System.out.println( s.indexOf( "dog" ) );
```

- a. 3
- b. 2
- c. -1
- d. 4
- e. 0

10. Consider the following code segment.

```
String s = "dogfood";
System.out.println( s.indexOf( "oo" ) );
```

- a. 3
- b. 2
- c. -1
- d. 4
- e. 0

11. What is output by the code below?

```
String s = "abac-adae-bfbg-bhbi";  
int index = s.indexOf("-b");  
System.out.println(s.substring(index));
```

- a. abac-adae-bfbg-bhbi
- b. -bfbg-bhbi
- c. bfbg-bhbi
- d. bhbi
- e. there is no output

<p>12. What is output by the code below?</p> <pre>int p = 40; if(p &gt;= 20) {     out.print("1");     if(p &gt;= 30)         out.print("2"); } else     out.print("3");</pre> <ul style="list-style-type: none"><li>a. 123</li><li>b. 12</li><li>c. 13</li><li>d. 1</li><li>e. 3</li></ul>	<p>13. What is output by the code below?</p> <pre>int w=50, x=68; if(w&gt;50)     if(x&gt;60)         out.print("it");     else         out.print("at"); else     out.print("up"); out.print("fun");</pre> <ul style="list-style-type: none"><li>a. fun</li><li>b. itatupfun</li><li>c. atfun</li><li>d. upfun</li><li>e. itfun</li></ul>
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14. What is output by the code below?

```
int a = 105, b = 120;  
if( a > 90)  
    if( b > 100)  
        out.print("go");  
    else if( b > 90)  
        out.print("it");  
    else  
        out.print("up");  
out.print("on");
```

- a. goon
- b. itupon
- c. iton
- d. upon
- e. on

15. What will be the value of bonus after the following statements are executed?

```
int bonus, sales = 10000;
if (sales < 5000)
    bonus = 200;
else if (sales < 7500)
    bonus = 500;
else if (sales < 10000)
    bonus = 750;
else if (sales < 20000)
    bonus = 1000;
else
    bonus = 1250;
```

- a. 750                      b. 1250                      c. 500                      d. 1000

16. What is the value of ans after the following code has been executed?

```
int x = 35;
int y = 20, ans = 80;
if (x < y)
    ans += y;
```

- a. 80                      b. 100                      c. 35                      d. 55

17. Consider the following method.

```
public String mystery(String input)
{
    String output = "";

    for (int k = 1; k < input.length(); k = k + 2)
    {
        output += input.substring(k, k + 1);
    }

    return output;
}
```

What is returned as a result of the call `mystery("computer")` ?

- (A) "computer"  
(B) "cmue"  
(C) "optr"  
(D) "ompute"  
(E) Nothing is returned because an `IndexOutOfBoundsException` is thrown.

18. Consider the following code segment.

```
int x = 7;
int y = 3;

if ((x < 10) && (y < 0))
    System.out.println("Value is: " + x * y);
else
    System.out.println("Value is: " + x / y);
```

What is printed as a result of executing the code segment?

- (A) Value is: 21  
(B) Value is: 2.3333333  
(C) Value is: 2  
(D) Value is: 0  
(E) Value is: 1

**#s 17-19 are AP Level Questions**

19. Consider the following method.

```
public void test(int x)
{
    int y;

    if (x % 2 == 0)
        y = 3;
    else if (x > 9)
        y = 5;
    else
        y = 1;

    System.out.println("y = " + y);
}
```

Which of the following test data sets would test each possible output for the method?

- (A) 8, 9, 12
- (B) 7, 9, 11
- (C) 8, 9, 11
- (D) 8, 11, 13
- (E) 7, 9, 10

20. Find the requested outputs for Lines 1 - 19 using the following strings:

```
String one = "apcomputersciencerocks";
String two = "098765210AB#";
String three = "02 13 998 45 0";
```

System.out.print( one.length());	// LINE 1	1.	_____
System.out.print( two.length());	// LINE 2	2.	_____
System.out.print( three.length());	// LINE 3	3.	_____
System.out.print( one.substring(0,4) );	// LINE 4	4.	_____
System.out.print( one.substring(5) );	// LINE 5	5.	_____
System.out.print( one.substring(9) );	// LINE 6	6.	_____
System.out.print( one.indexOf( "c" ) );	// LINE 7	7.	_____
System.out.print( one.indexOf( "sci" ) );	// LINE 8	8.	_____
System.out.print( one.indexOf( "code" ) );	// LINE 9	9.	_____
System.out.print( one.lastIndexOf( "c" ) );	// LINE 10	10.	_____

## Free Response

**21.** Write a return method named `wow` that returns the last  $\frac{1}{2}$  of a string plus the word "wow". For example, the call `wow("bananarama")` returns "aramaWOW"

```
public static String wow( String s ) {
```