

Software Design I (CS 120)  
Quiz 04: Monday, 05 March 2018

NAME \_\_\_\_\_

(1) (5 pts.) For each of the following, give the value of the desired variables.

(a) (2 pts.) What are the values of `x` and `y` after all of the following code executes?

```
int x = 5;
int y = 11;

if ( ( y / 2 ) > x )
{
    y = x;
    x = y;
}
else if ( y != x )
{
    x = y;
    y = x;
}
```

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(b) (3 pts.) What are the values of `x`, `y`, and `z` after all of the following code executes?

```
x = 3;
y = 10;
double z = 3.0;

if ( x == z )
{
    y = y / 3;
    if ( y > z )
    {
        z = z / 2;
    }
    else
    {
        z = z * 2;
    }
}
else
{
    z = x;
    x = y;
    y = (int) z;
}
```

(2) (10 pts.) For each of the following, suppose we have two integer values:

```
int a = (int)( Math.random() * 10 + 1 );
int b = (int)( Math.random() * 10 + 1 );
```

- (a) Fill in the following conditional so that output is generated if and only if integer **a** is greater than 5, but **b** is not.

```
if ( _____ )
{
    System.out.println( "a is greater than 5, but b isn't." );
}
```

- (b) Fill in the following conditional so that output is generated if and only if either integer **a** or integer **b** is less than 4.

```
if ( _____ )
{
    System.out.println( "either a or b is less than 4." );
}
```

- (c) Fill in the following conditional so that the output is generated if and only if integer **b** is within 1 of integer **a** (e.g., if **a** == 5, then **b** would be within 1 if  $4 \leq b \leq 6$ ).

```
if ( _____ )
{
    System.out.println( "b is within 1 of a." );
}
```

- (d) Fill in the following conditional so that the output is generated if and only if integer **a** is greater than 5 and integer **b** is greater than **a**.

```
if ( _____ )
{
    System.out.println( "a is greater than 5, and b is greater than a." );
}
```

- (e) Write code that uses **nested conditional** statements (i.e., two if-statements, one inside the other) to produce exactly the same result as the code in part (d).