

1. Assertions. You will identify various assertions as being either always true, never true or sometimes true/sometimes false at various points in program execution. The comments in the method below indicate the points of interest.

```
public static void mystery(int x, int y) {
    int z = 0;
    // Point A
    while (x >= y) {
        // Point B
        x = x - y;
        // Point C
        z++;
        // Point D
    }
    // Point E
    System.out.println(z + " " + x);
}
```

Fill in the table below with the words ALWAYS, NEVER or SOMETIMES.

	x < y	x == y	z == 0
Point A			
Point B			
Point C			
Point D			
Point E			

2. Assertions. You will identify various assertions as being either always true, never true or sometimes true/sometimes false at various points in program execution. The comments in the method below indicate the points of interest.

```

// pre : y >= 0
// post: returns x^y
public static int pow(int x, int y) {
    int prod = 1;
    // Point A
    while (y > 0) {
        // Point B
        if (y % 2 == 0) {
            // Point C
            x = x * x;
            y = y / 2;
            // Point D
        } else {
            // Point E
            prod = prod * x;
            y--;
            // Point F
        }
        // Point G
    }
    // Point H
    return prod;
}

```

Assume the method is called only if the precondition is true. Fill in the table below with the words ALWAYS, NEVER or SOMETIMES.

	y == 0	y % 2 == 0
Point A		
Point B		
Point C		
Point D		
Point E		
Point F		
Point G		
Point H		

Solution to CSE142 Sample Assertions Problems

1.

	$x < y$	$x == y$	$z == 0$
Point A	sometimes	sometimes	always
Point B	never	sometimes	sometimes
Point C	sometimes	sometimes	sometimes
Point D	sometimes	sometimes	never
Point E	always	never	sometimes

2.

	$y == 0$	$y \% 2 == 0$
Point A	sometimes	sometimes
Point B	never	sometimes
Point C	never	always
Point D	never	sometimes
Point E	never	never
Point F	sometimes	always
Point G	sometimes	sometimes
Point H	always	always