Tutorial Quiz #9 — Solutions

Write a *recursive* Java method that computes $\prod_{i=1}^{n} \sqrt{i} = \sqrt{1} \times \sqrt{2} \times \cdots \times \sqrt{n}$ for a given value of n. (**Hint:** Method `Math.sqrt()` computes the square root of its argument—note that both the argument and the return value of `Math.sqrt()` are of type `double`.)

Answer:

```
/** Computes and returns the product of the first n square roots. */
public static double prodSqrt(int n) {
    if (n == 0)  return 1.0;
    else  return Math.sqrt(n) * prodSqrt(n - 1);
}
```

Marking Scheme:

A. 1 mark for declaring the method correctly (with *one* argument of type `int` or `double`, and return value of type `double`)

B. 1 mark for having a base case for `n == 0` or `n == 1`

C. 1 mark for having the correct return value in the base case

D. 1 mark for having the correct call in the recursive case

E. 1 mark for computing and returning the correct value in the recursive case

Common Errors: