1. Mark all of the following true expressions about the height of a binary search tree of size $N$.

- $O(\log N)$
- $\Omega(\log N)$
- $\Theta(\log N)$
- $\Theta(N)$
- $\Omega(N)$

2. Mark all of the following true expressions about the height of a B-tree of size $N$.

- $O(\log N)$
- $\Omega(\log N)$
- $\Theta(\log N)$
- $\Theta(N)$
- $\Omega(N)$

3. Draw the 2-3 tree that results from inserting the following items in this order: 1, 2, 3, 7, 8, 9, 5.

```
    2 7
   / \
  1   3 5 8 9
```

4. Draw the corresponding left-leaning red-black tree. Write “red” next to red links.

```
    7
   / \
  2   9
 /   /  \\
1 3 5 8
   red   red
```