## Algorithm1 $(n)$

1: Initialize $i, j, k, count = 0$
2: **for** $(i = n/2; i <= n; i = i + 1)$ **do**
3:    **for** $(j = 1; j + n/2 <= n; j = j + 1)$ **do**
4:       **for** $(k = 1; k <= n; k = k \times 2)$ **do**
5:          $count \leftarrow count + 1$
6:       **end for**
7:    **end for**
8: **end for**
9: **return count**

**Asymptotic Runtime:** _____

## Algorithm2 $(n)$

1: Initialize $i, j, k, count = 0$
2: **for** $(i = n/2; i <= n; i = i + 1)$ **do**
3:    **for** $(j = 1; j <= n; j = 2 \times j)$ **do**
4:       **for** $(k = 1; k <= n; k = k \times 2)$ **do**
5:          $count \leftarrow count + 1$
6:       **end for**
7:    **end for**
8: **end for**
9: **return count**

**Asymptotic Runtime:** _____

## Algorithm3 $(n)$

1: Initialize $i, j, count = 0$
2: **if** $(n == 1)$ **then**
3:    return
4: **end if**
5: **for** $(i = 1; i <= n; i = i + 1)$ **do**
6:    **for** $(j = 1; j <= n; j = 2 \times j)$ **do**
7:       $count \leftarrow count + 1$
8:       break
9:    **end for**
10: **end for**
11: **return count**

**Asymptotic Runtime:** _____

**PS next page ...**

**Algorithm4 ($n$)**

    1: Initialize $i, j = 1$
    2: **while** $(i < n)$ **do**
    3:    $j \leftarrow n$
    4:    **while** $(j > 0)$ **do**
    5:      $j \leftarrow j/2$
    6:    **end while**
    7:    $i \leftarrow i \times 2$
    8: **end while**

**Asymptotic Runtime:** ＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

**Algorithm5 ($n$)**

    1: Initialize $i, j, k, count = 0$
    2: **for** $(i = 1; i <= n; i = i + 1)$ **do**
    3:    **for** $(j = 1; j <= n; j = j + 2)$ **do**
    4:      **for** $(k = 1; k <= n; k = k + 3)$ **do**
    5:        $count \leftarrow count + 1$
    6:      **end for**
    7:    **end for**
    8: **end for**
    9: **return count**

**Asymptotic Runtime:** ＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿