

Trace Tables

1. The Pearson pseudocode to the right describes an algorithm that will determine if a given number, n , is a prime number or not. Complete the trace tables in order to understand how the algorithm works. The $\text{FLOOR}(n)$ function truncates the number at the decimal point (equivalent to Pearson pseudocode $n \text{ DIV } 1$). The table may have more rows than necessary.

```

1 FUNCTION primeCheck(n)
2 BEGIN FUNCTION
3   SET i TO 2
4   SET isPrime TO True
5   SET limit TO FLOOR(n^0.5)
6   WHILE isPrime AND i <= limit DO
7     IF n MOD i = 0 THEN
8       SET isPrime TO False
9     SET i TO i + 1
10  RETURN isPrime
11 END FUNCTION
    
```

Trace table for primeCheck(35)

n	limit	i	i <= limit	n % i	n % i == 0	isPrime
35	5	2	True	1	False	True
35	5	3	True	2	False	True
35	5	4	True	3	False	True
35	5	5	True	0	True	False
<i>return value:</i>						False

Trace table for primeCheck(37)

n	limit	i	i <= limit	n % i	n % i == 0	isPrime
37	6	2	True	1	False	True
37	6	3	True	1	False	True
37	6	4	True	1	False	True
37	6	5	True	2	False	True
37	6	6	True	1	False	True
37	6	7	False			True
<i>return value:</i>						True