

10.2

$x \div y$

```
1 x := x + 1;
2 LOOP x
#   Increase z unless x == 0
3   k := 0;
4   LOOP x DO k := 1 END
5   LOOP k DO z := z + 1 END
#   Subtract divisor from dividend
6   LOOP y DO x := x - 1 END
7 END
8 z := z + 1;
```

$x \bmod y$

```
# get clones of variables for calculation
1 LOOP x DO a := a + 1 END
2 LOOP y DO b := b + 1 END
3 a := a + 1;
4 LOOP a
#   Increase z unless a == 0
5   k := 0;
6   LOOP a DO k := 1 END
7   LOOP k DO z := z + 1 END
#   Subtract divisor from dividend
8   LOOP b DO a := a - 1 END
9 END
10 z := z + 1;
11 LOOP z DO
12   LOOP y DO
13     j := j + 1;
14   END
15 END
16 LOOP j DO x := x - 1; END
```

TGI

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10.3

10.4