Solutions

Each answer shows the steps, then the **result**.

2.1

- (i) **parallelogram**
- (ii) **diamond**
- (iii) **rectangle**

2.2

- 30 > 0: `max` 30
- 75 > 30: `max` 75; the second 75 is not greater, so `max` stays 75
- output **75**

2.3

- normal: e.g. 12
- boundary: 8 and 16 (or 7 and 17 just outside); invalid: e.g. 3 or 40

3.1 C

- a loop back is iteration

3.2 C

- 1, 2, 4, 8, 16, 32: the loop stops at 32

3.3 B

- 18 is the top edge of the range

3.4

(a)

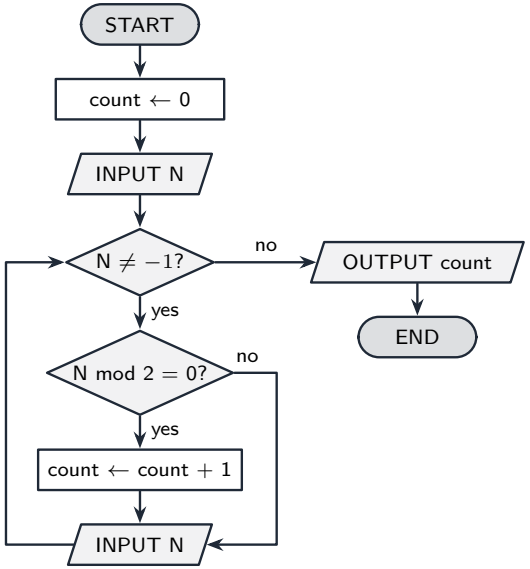
`N`	`N mod 2 = 0?`	`count`
		0
4	yes	1
7	no	1
10	yes	2
0	yes	3
-1		

- 4 and 7 correct
- 10 and 0 correct: 0 is even
- loop ends at -1 without testing it
- output **3**

(b)

- selection: `if N mod 2 = 0`
- iteration: `loop while N ≠ -1`

(c)



- START, `count ← 0` and INPUT `N` in sequence
- decision `N ≠ -1?`, with no leading to OUTPUT `count` and END
- decision `N mod 2 = 0?`, yes leading to `count ← count + 1`
- INPUT `N` then an arrow back to the first decision

(d)

- the loop never runs: output **0**
- correct: no numbers were entered, so none are even