

Solutions

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

2.1

- (i) **integer**
- (ii) **real** (float)
- (iii) **Boolean**
- (iv) **string**: it holds letters and a hyphen

2.2

- (i) **3**
- (ii) **2**
- (iii) **3.4**

2.3

- (i) **8**
- (ii) indexes 2 to 5: **"2027"**
- (iii) **6**
- (iv) the last character, **"S"**

2.4

- (i) **syntax**
- (ii) **logic**: it runs but gives the wrong answer
- (iii) **runtime**: an index error, as valid indexes are 0 to 4

3.1 B

- **+** joins two strings

3.2 B

- indexes 2, 3, 4: **t, h, o**

3.3 D

- **int** cannot convert text with a decimal point

3.4

(a)

t	count	total	high
"18"	0	0	-100
	1	18	18
"23"	2	41	23
"19"	3	60	23
"x"			

- **count** and **total** correct
- **high** correct
- loop ends at **x**
- output **20.0 23**

(b)

- the loop body never runs, so **count** is 0
- **total / count** divides by zero: a **ZeroDivisionError**, and nothing is printed

(c)

- **int("twenty")** raises a **ValueError**
- put the cast inside **try**
- the **except ValueError** block prints a message and asks again instead of stopping

(d)

- normal: e.g. 21
- boundary: -40 or 50
- invalid: e.g. 51, -41 or "abc"