Grade 7 Computing

Unit 5 · Spreadsheets and Data

ANSWER KEY · FOR TEACHERS

Full marks 37

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. relative reference
2. absolute reference
3. fill handle
4. criterion
5. cleaning
6. trend line
7. extrapolation
8. bias

Each carries 0.5 mark. **K · 4**

2 Multiple choice

i. **b.** 11 **A · 1**

Times comes before plus: B2 × 2 = 6, then 5 + 6 = 11. To add first, write `=(A2+B2)*2`, which gives 16.

ii. **b.** `=A5*$B$1` **U · 1**

The relative address A2 moves down 3 rows to A5. The absolute address `$B$1` stays as it is.

iii. **c.** `=SUMIF(B2:B31, "Motorbike", D2:D31)` **A · 1**

SUMIF tests column B and adds the matching rows' column D. SUM adds everyone; COUNTIF counts the motorbike riders; AVERAGEIF averages their minutes instead of adding them.

iv. **b.** Change them all to one spelling, "Bus". **U · 1**

They are the same answer, so they should be written the same way. Some spreadsheets ignore capitals, but "Bus " with a space is still a different word to the computer, and deleting or changing them to "Other" throws real answers away.

v. **a.** 25 km is far outside the data, so the prediction is a guess that may be badly wrong. **U · 1**

This is extrapolation: the line was found from trips of 1 to 5 km, and nobody 25 km away was asked. Such a student probably travels by bus, which the line knows nothing about.

3 True or false

i. ✓ **True**
ii. ✗ **False:** SUM adds up every row in its range, hidden or not.
iii. ✗ **False:** Leave the cell empty: a 0 counts a trip that took no time and pulls the average down.
iv. ✓ **True**
v. ✓ **True**
vi. ✗ **False:** The groups don't say each student's exact age, so the average can't be worked out.

Each carries 0.5 mark. **U · 3**

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4 Copying formulas

MARKING SCHEME **A · 3**

- ✓ i. `=B5*C5`: each relative address moves 3 rows down.
- ✓ ii. `=D3/D10*100`: the total's address moved down too, to the empty cell D10, so the answer is wrong (#DIV/0!).
- ✓ iii. `=D2/$D$9*100`: the $ signs fix D9, so every copy divides by the one total.

5 Group and summarize

a. **MARKING SCHEME** **A · 4**

- ✓ i. `=COUNTIF(B2:B41, "Everest")`
- ✓ ii. `=SUMIF(B2:B41, "Lhotse", C2:C41)`
- ✓ iii. `=AVERAGEIF(B2:B41, "Makalu", C2:C41)`
- ✓ iv. `=COUNTIF(C2:C41, ">=15")`

b. **MARKING SCHEME** **A · 2**

- ✓ `=COUNTIF($B$2:$B$41, F2)`, with the range fixed and F2 relative.
- ✓ The range must stay the same in every copy, while F2 must move to F3, F4, F5; without the $ signs G3 would count B3:B42, missing the first student.

6 Messy data

ANSWER **A · 4**

- **Sita:** "walking" is the same answer as "Walk" in different words. Change it to Walk.
- **Ram:** "2 km" is a number stored as words, which SUM and AVERAGE skip. Change it to 2 (the unit belongs in the header). His row also appears twice: a **repeat**, so delete one copy.
- **Nima:** the minutes are **missing.** Ask Nima if you can; otherwise leave the cell empty (not 0) and say that the average is of those who answered.
- **Sabina:** 200 minutes for a 1 km walk is **impossible** (over three hours). Ask her; probably she meant 20. If you can't ask, leave it out of the average and note why.

MARKING SCHEME

- ✓ Sita: "walking" is the same answer in different words; change it to Walk.
- ✓ Ram: "2 km" is a number stored as words, so change it to 2; and his row appears twice, a repeat, so delete one copy.
- ✓ Nima: the minutes are missing; ask again, or leave the cell empty (not 0) and say how many answered.
- ✓ Sabina: 200 minutes for a 1 km walk is impossible; ask her (she probably meant 20), or leave it out of the average and say why.

7 Calculations

ANSWER **A · 3**

i. Total out = 8,000 + 12,000 + 3,000 + 2,000 + 1,500 = **Rs 26,500.**

ii. Left to save = 30,000 − 26,500 = **Rs 3,500.**

iii. Total out rises by 1,500 to Rs 28,000, so 30,000 − 28,000 = **Rs 2,000** is left. In a spreadsheet, with Left to save as `=B1-B7`, only the rent cell is changed.

MARKING SCHEME

- ✓ 8,000 + 12,000 + 3,000 + 2,000 + 1,500 = Rs 26,500.
- ✓ 30,000 − 26,500 = Rs 3,500.
- ✓ Total out Rs 28,000, so Rs 2,000 is left.

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8 Trends

MARKING SCHEME U · 3

- ✓ i. The hotter the day, the more cold drinks are sold: the dots climb from left to right in a band.
- ✓ ii. From the weather forecast, it can predict tomorrow's sales and buy and chill enough stock, without buying too much.
- ✓ iii. Any one limit: it holds only for temperatures inside the ten days recorded; ten days is little data; other things change sales too (a festival, a holiday); it is for this shop, not others.

9 Long answer

ANSWER A · 4

1. **Who was asked:** 15 friends in one class, not students across Nepal, or even across her school. Her friends may think like her.
2. **Who could answer:** only those on the messaging app.
3. **A leading question:** "Don't you agree…" pushes people to say yes. A fair question would be "Is our school day too long, about right, or too short?"
4. **Too small:** 15 answers can't speak for a whole country.

She also doesn't say how many answered which way, so there is no evidence for "most". An honest finding: "Of 15 of my friends in Class 7, asked through a messaging app, 11 agreed that our school day is too long. The question may have pushed them to agree, and they may not think like other students." (11 stands for whatever her real count was.)

MARKING SCHEME

- ✓ Who was asked: 15 friends in one class can't stand for students across Nepal.
- ✓ Who could answer: only those on the messaging app.
- ✓ A leading question: "Don't you agree…" pushes people to say yes (a fair one: "too long, about right, or too short?").
- ✓ Too few answers to speak for a country (or no count given for "most"), with an honest finding about her 15 friends only.

10 Think

ANSWER HA · 2

A trend shows only that the two go together; it doesn't prove that one causes the other. A third thing, hot weather, explains both: in a hot week more people buy ice cream, and more people go swimming, so more drown. Ice cream doesn't make anyone drown. To find a cause, you would need more evidence, for example comparing weeks with the same weather.

MARKING SCHEME

- ✓ Going together doesn't prove that one causes the other.
- ✓ A third thing, hot weather, makes both go up: more ice cream bought and more people swimming.

11 Activity: Plan a week's money

(not marked)

WHAT STUDENTS SHOULD FIND

The planned column should add up exactly: Total out is the sum of the four rows, and Left is Money in − Total out (it should not be below zero). The real column usually differs from the plan: snacks often cost more than planned, and something nobody planned turns up. That is why a budget is planned from real numbers, such as what was spent last week, and why some money is kept aside.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	4	9	22	2	**37**

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