Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

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

2.1

(a) mean $= 56 \div 7 =$ **8**; median = **6**; mode = **5**

(b) the median, because the extreme score of 20 pulls the mean up

2.2

the difference (0.6) is very small compared with the standard deviations (about 5); the scores overlap a lot, so the difference may be due to chance; an inferential test is needed

2.3

a moderate negative correlation; students with more screen time tend to sleep less, but it does not show that screen time causes less sleep

2.4

if there were really no difference (null hypothesis), a difference this big would happen by chance only 3 % of the time; so it is statistically significant at $p < 0.05$; but the effect may be small, especially in a large sample / one study may not replicate

2.5

(a) bar chart; (b) scatter graph

2.6

thematic analysis finds themes (patterns of meaning) in qualitative data such as transcripts; content analysis counts how often coded categories appear, turning words into numbers

3.1

(a) any one, explained: self-reported diary data may be inaccurate, e.g. students underestimate screen time, so the strength of the link is uncertain; or one school, 60 students: may not generalize; or correlational: no direction of cause

(b) award up to [6]: a moderate negative correlation, $r = -0.41$; students with more late screen time tend to sleep less; sleep ranged from about 6 to 8.5 hours, so some students sleep less than is often advised; but the correlation does not show cause: students who cannot sleep may use screens more; other variables, e.g. homework or stress, could explain both; conclusion: Source A supports a link between late screen use and less sleep, but not that screens cause it

(c) award up to [6]: objective measures, e.g. sleep trackers and screen-time logs from the phone; a larger sample from several schools; an experiment: randomly allocate students to "no screens after 9 p.m." for a week and compare sleep; replication by another researcher / pre-registered plan

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