

Differences between data and information

Unit: Data Analysis and Representation (Google Sheets) - Student Practice Worksheet

Overview: Anaya stood up and read out forty-two numbers. By the seventh, Kabir had stopped listening. By the fortieth, so had everyone else. Not one person could say which house should run the relay.

Practice Questions (30 Total)

Section A - Easy

Q1. Raw facts that have not been given meaning yet are called what?

10.4	raw fact, no meaning yet
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- ☐ A. Information
- ☐ B. Data
- ☐ C. Answers
- ☐ D. Labels

Q2. What was wrong with Anaya's "9.2"?

- ☐ A. It came from another race and month
- ☐ B. It was typed in the wrong colour
- ☐ C. It was smaller than 10.2
- ☐ D. It was sitting in row 1

Q3. Which one of these is information?

- ☐ A. The number 10.4 on its own
- ☐ B. A column of house names
- ☐ C. Blue should run the relay
- ☐ D. The date 12/08 in a cell

Q4. Which of these three things does the concept say turns data into information?



three steps to information

- ☐ A. A label, organising, and a question
- ☐ B. A title, a font, and a colour
- ☐ C. A teacher, a sheet, and a pen
- ☐ D. A number, a symbol, and a date

Q5. Ms. Rao's second question was about who improved most since when?

- ☐ A. Since last week
- ☐ B. Since June
- ☐ C. Since the start of the school year
- ☐ D. Since yesterday's practice

Q6. What did Kabir do first to the times, before adding anything?

- ☐ A. Deleted the slowest runners
- ☐ B. Asked every runner to race again
- ☐ C. Changed them all to whole numbers
- ☐ D. Sorted them from smallest to largest

Q7. How many rows did the trials sheet hold?



42 trial rows

- ☐ A. Twelve
- ☐ B. Forty-two
- ☐ C. Nine
- ☐ D. Four

Q8. Ms. Rao said "nobody can drink flour". What did she mean by that?

- ☐ A. That data is useless and should be thrown away
- ☐ B. That Kabir's sentence was too short to be useful
- ☐ C. That Anaya's number was inedible
- ☐ D. That raw data is still needed, even though it isn't the finished answer

Q9. How many words was Kabir's answering sentence?

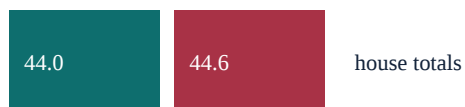
- ☐ A. Four
- ☐ B. Forty-two
- ☐ C. Twelve
- ☐ D. Nine

Q10. Which house had the fastest total for its top four runners?

- ☐ A. Blue
- ☐ B. Green
- ☐ C. Red
- ☐ D. Yellow

Section B - Medium

Q11. Red House totals 44.0 s and Yellow 44.6 s. Which of these is information the Yellow captain can use?



- ☐ A. Yellow's number is 44.6
- ☐ B. Red's number is 44.0
- ☐ C. Four houses ran the trials
- ☐ D. Yellow is 0.6 s behind Red

Q12. Kabir's twelve-word sentence replaced forty-two rows. Why is that normal?

- ☐ A. Sheets deletes rows by itself
- ☐ B. Information answers one question
- ☐ C. Short sentences are always right
- ☐ D. He forgot most of the numbers

Q13. Anaya's "9.2!" and Kabir's "Blue should run the relay" both used real numbers from real sheets. What actually separates them?

- ☐ A. One was sorted and organised toward the question; the other wasn't
- ☐ B. One number was bigger than the other
- ☐ C. Kabir's sentence used no numbers at all

- ☐ D. Anaya's number was made up

Q14. Blue's fastest four runners are in the table. What is Blue's total time?

10.2 + 10.4 + 10.5 + 10.8

Blue fastest four

- ☐ A. 40.8
- ☐ B. 41.6
- ☐ C. 41.8
- ☐ D. 42.0

Q15. "The same data can answer one question and be useless for another" — which pair from the story shows this best?

- ☐ A. The 42 rows answered "which house should run the relay" but not "who improved most"
- ☐ B. Anaya's 9.2 answered every question Ms. Rao asked
- ☐ C. Kabir's twelve words answered nothing at all
- ☐ D. The June sheet and the August sheet held identical numbers

Q16. Which of these would turn "Meera: 10.2" from data into information?

- ☐ A. Changing the font it is displayed in
- ☐ B. Labelling it as her 50 m time and comparing it
- ☐ C. Typing it in bold
- ☐ D. Copying it into a second cell

Q17. A sheet lists every child's favourite colour. The teacher then writes "most of the class likes blue, so we will paint the wall blue." What is that second sentence?

colour list

paint the wall blue

- ☐ A. Data, because it still mentions a colour
- ☐ B. Data, because it is a raw list with no question
- ☐ C. Information, because it answers a decision using the list
- ☐ D. Neither, because colour is not a number

Q18. Which of these is the best one-sentence test for whether something is information rather than data?

- ☐ A. Does it have more than one digit?
- ☐ B. Is it shorter than the data it came from?
- ☐ C. Does it answer a specific question someone asked?
- ☐ D. Is it typed in a spreadsheet cell?

Q19. Why couldn't Ms. Rao's second question be answered from the trials sheet alone?

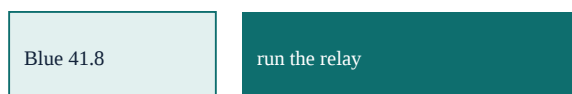
- ☐ A. The trials sheet was sorted the wrong way
- ☐ B. Ms. Rao's question was not really about the trials
- ☐ C. Improvement cannot ever be measured with a spreadsheet
- ☐ D. It held no June times to compare against

Q20. A new sheet lists every runner's time, sorted fastest to slowest, but with no house column at all. Can it answer "which house should run the relay"?

- ☐ A. Yes — sorting alone is always enough
- ☐ B. No — without the house label, the sort can't be grouped by house
- ☐ C. Yes, because the fastest runner is always in the fastest house
- ☐ D. No — sorted data can never become information

Section C - Challenge

Q21. Why is "Blue should run the relay" described as information, while "Blue: 41.8 seconds" is closer to the edge between data and information?



- ☐ A. "Blue: 41.8 seconds" is a fact with a label and total, but on its own it still hasn't answered the actual question asked
- ☐ B. Numbers can never be information, only sentences can
- ☐ C. "Blue: 41.8 seconds" is wrong, so it cannot be information
- ☐ D. There is no real difference between the two

Q22. What does the failure to answer "who improved most since June?" actually show about data collection?

- ☐ A. That improvement can never be measured from a spreadsheet

- ☐ B. That Ms. Rao's question was unfair to ask
- ☐ C. That June times are less accurate than August times
- ☐ D. That what you record today decides which questions you can answer tomorrow

Q23. "More data always means better information." Anaya read all forty-two numbers aloud — every number there was — and it told nobody anything. What does that prove about the claim?

- ☐ A. It proves the claim true — forty-two is a large number
- ☐ B. It proves Anaya should have read the numbers more slowly
- ☐ C. It proves data and information are exactly the same thing
- ☐ D. It proves the claim false — quantity without labelling, organising or a question produces nothing

Q24. Ms. Rao says data is "the raw material", not rubbish. What is the strongest argument for that framing over just calling data "useless"?



- ☐ A. Data becomes useless the moment it is collected
- ☐ B. The same 42 rows, once organised properly, produced the correct answer — nothing needed to be thrown away
- ☐ C. Data is always more valuable than information
- ☐ D. Only Ms. Rao's data was ever useful

Q25. A classmate says: "Kabir's sentence is information because it is short." What is the actual flaw in that reasoning?

- ☐ A. Yes, any sentence under fifteen words is automatically information
- ☐ B. Length is irrelevant. It is information because it answers a question using the data
- ☐ C. No, it is still data, because it came from a spreadsheet
- ☐ D. No, it is still data, because twelve is smaller than forty-two

Q26. Which of these new questions could the ORIGINAL 42-row trials sheet answer without fetching any other sheet?

- ☐ A. "Which runner has the slowest 50 m time?"
- ☐ B. "Who improved most since June?"
- ☐ C. "Which runner has the fastest 100 m time?"

- ☐ D. "How many runners will race next year?"

Q27. Kabir used the fastest four runners per house. Anaya says he should have used every runner's average instead. Whose method fits the relay question better?



- ☐ A. Anaya's — an average always describes a group better
- ☐ B. Neither — total time cannot decide a relay
- ☐ C. Kabir's — because a relay is run by exactly four runners, so only they matter
- ☐ D. Both equally — they would always give the same ranking

Q28. What is the deepest lesson the whole story teaches about data and information?

- ☐ A. Information is just data with better formatting
- ☐ B. Meaning comes from labelling, organising and aiming at a real question — not from the amount of data or how it looks
- ☐ C. Only teachers can turn data into information
- ☐ D. Every number in a spreadsheet is already information

Q29. Which pair of facts, put together, would let someone answer "who improved most since June" — assuming both sheets are available?

- ☐ A. A runner's June 30 m time and their August 50 m time, since both are speeds
- ☐ B. Just the August sheet, sorted by house
- ☐ C. A runner's June and August times over the same distance, compared for each child
- ☐ D. Just the June sheet, sorted by name

Q30. Which single change to the ORIGINAL trials sheet would have let it answer both of Ms. Rao's questions without fetching anything else?

- ☐ A. Recording each runner's June time in the same sheet from the start
- ☐ B. Making the font bigger so numbers are easier to read
- ☐ C. Asking every runner to race a third time
- ☐ D. Deleting the slowest runners from the sheet

Answer Key

Q1: (B) (b) Data. Option (d) is the tempting one — a label is what you add to data, not the name for the raw facts themselves.

Q2: (A) (a) It came from the 30-metre practice in June, in a different sheet. Option (c) is tempting, because a smaller number does look faster — but a number you cannot label proves nothing.

Q3: (C) (c) Blue should run the relay — it answers the question that was asked. Options (a) and (d) are single facts with no meaning attached, so they are still data.

Q4: (A) (a) Label, organise, and a question to answer — the three named in the concept. Option (d) lists kinds of raw data, not the things that give it meaning.

Q5: (B) (b) Since June, when the 30-metre practice times were recorded. Kabir had to fetch that older sheet to even attempt an answer.

Q6: (D) (d) Sorting came first, then he could pick out the fastest four in each house. Option (a) never happens — nobody's row is deleted.

Q7: (B) (b) Forty-two rows, one per runner. Twelve (a) is the number of words in Kabir's sentence — a different number from a different part of the story.

Q8: (D) (d) Flour isn't bread, but you can't bake bread without it — data is the raw material information is made from. Option (a) is the opposite of her point.

Q9: (C) (c) Twelve words, replacing forty-two rows. Option (b), forty-two, is the number of rows it replaced, not its own length.

Q10: (A) (a) Blue, at 41.8 seconds. The others were slower: Green 43.2, Red 44.0, Yellow 44.6.

Q11: (D) (d) Yellow is 0.6 s behind Red — it compares, so it tells the captain exactly how much to find. Option (a) is only Yellow's own number: true, but it answers nothing on its own.

Q12: (B) (b) Information answers one question, so once it is answered the extra rows are not part of the answer. Option (c) is wrong: short does not mean correct — Anaya's "9.2!" was very short and quite wrong.

Q13: (A) (a) Kabir's answer came from sorting, grouping by house, and adding toward the specific question asked; Anaya's was one unlabelled number grabbed in a hurry. Option (d) is false — her 9.2 was a real recorded time, just from the wrong race.

Q14: (C) (c) 41.8 seconds. $10.2 + 10.4 = 20.6$, $+ 10.6 = 31.2$, $+ 10.6 = 41.8$. Option (b), 41.6, is what you get if you slip and add 10.4 twice instead of 10.6.

Q15: (A) (a) The trials data was exactly enough for the relay question and completely silent on the improvement question. Option (b) is contradicted directly — Anaya's number was in the wrong column and answered nothing.

Q16: (B) (b) Adding what it measures and comparing it to something gives it meaning. Option (d) just duplicates the same unlabelled fact — still data, twice.

Q17: (C) (c) The second sentence answers a decision using the list, so it is information. The original colour list alone is still data.

Q18: (C) (c) Answering a question is the actual test; the topic's own three-part cheat card (label, organise, question) all point at this. Option (b) is often true but is a side effect, not the test itself — a short but unlabelled number is still just data.

Q19: (D) (d) Improvement is a comparison, and there was nothing in that sheet to compare August against. Option (c) is far too strong — spreadsheets are exactly the tool for this kind of comparison, once both sets of data exist.

Q20: (B) (b) Sorting is one of the three steps, but without the house label there is no way to group times by house at all. Option (d) overstates it — sorting is exactly one of the moves that helps, just not a complete one on its own here.

Q21: (A) (a) It has gone through labelling and organising, but stating one house's total is not yet the same as answering "which house should run the relay" — that needs the comparison across all four. Option (b) is disproven by the story's own "Blue's fastest four = 41.8 s" cheat-card example, which is information with a number in it.

Q22: (D) (d) A comparison needs two matching sets of data — if a measurement was never taken, no amount of clever sorting brings it back later. Option (a) is too strong; the June sheet did exist, it just had to be fetched separately.

Q23: (D) (d) All the data that existed was on the table and still answered nothing, because none of the three steps — label, organise, question — had been applied. Option (b) misses the point entirely; reading speed was never the problem.

Q24: (B) (b) Kabir didn't need new numbers to answer the relay question — the same rows Anaya had just read aloud were exactly what he sorted and added. Option (a) contradicts the entire second half of the story.

Q25: (B) (b) Length is not the test. The sentence is information because it answers a question using processed data. Option (a) treats shortness as a rule, which the story rejects.

Q26: (A) (a) The slowest time is a fact already sitting in that same sheet — sort it the other way and read the bottom row. Options (b), (c) and (d) all need data the sheet never collected.

Q27: (C) (c) A relay is run by exactly four children per house, so only the fastest four will ever race — an average including slower runners answers a different question. Option (a) describes a real, useful method, just not one that answers what was actually asked.

Q28: (B) (b) That is exactly what separates Anaya's unlabelled "9.2!" and her forty-two-number recital from Kabir's twelve-word answer. Option (d) is the misconception the whole story is built to correct.

Q29: (C) (c) A fair comparison needs the same distance measured at two points in time, matched per runner. Option (a) repeats Anaya's original mistake — 30 m and 50 m times cannot be compared directly.

Q30: (A) (a) If June's times had lived in the same sheet, both questions — fastest house and most improved — could have been answered from one place. Option (c) adds effort without adding the one thing that was actually missing: a June record.

You've got this! Keep learning and shining! - Ruchi Math Coaching