# Graphs & Data Interpretation — Practice

CKSTEM Math Problem Solving · Grades 4–8

## 1 READ THE SCALE

On a bar graph the axis is gridded so that one square equals 2 cans. A donation bar rises exactly 6 squares. How many cans does that bar represent?

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## 2 READ THE SCALE

A relief drive bar graph uses a scale of one square = 5 blankets. The Monday bar is 7 squares tall and the Tuesday bar is 4 squares tall. How many blankets were collected over the two days combined?

WORK IT OUT HERE

## 3 READ THE SCALE

A supplies bar graph uses a scale of one square = 4 items. The three bars on the graph rise 3, 5 and 8 squares. What is the total number of items across all three bars?

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**4** GRAPH + CLUE

A bar graph shows juice boxes handed out Monday, Tuesday, Wednesday as 9, 12, 18. A note says, 'On Thursday, 4 fewer juice boxes were handed out than on Wednesday.' How many juice boxes were handed out Monday through Thursday?

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**5** GRAPH + CLUE

A bar graph shows kits packed Monday through Thursday: 11, 14, 18, 22. A clue states, 'On Friday, twice as many kits were packed as on Monday.' How many kits were packed Monday through Friday?

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**6** GRAPH + CLUE

A bar graph shows meals served Monday through Friday: 16, 18, 20, 22, 24. Two clues follow: 'On Saturday, 6 more meals were served than on the smallest weekday bar,' and 'On Sunday, half as many meals were served as on Saturday.' How many meals were served all seven days?

WORK IT OUT HERE

**7** DECODE THE SCALE, THEN COMBINE

A bar graph uses a scale of one square = 5 toys. Bar A rises 4 squares and Bar B rises 7 squares. How many more toys does Bar B represent than Bar A?

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**8** DECODE THE SCALE, THEN COMBINE

A supplies bar graph uses a scale of one square = 3 boxes. The four bars stand at W = 6 squares, X = 2 squares, Y = 5 squares, Z = 3 squares. How many more boxes are W and Y combined than X and Z combined?

WORK IT OUT HERE

**9** DECODE THE SCALE, THEN COMBINE

A pictogram shows medals won by four schools: ▲▲▲▲ (Maple), ▲▲▲▲▲▲▲▲ (Oak), ▲▲▲▲▲ (Pine), ▲▲▲▲▲▲▲▲▲▲ (Birch). The chart key says one ▲ = 6 medals. How many medals do the four schools have in total?

WORK IT OUT HERE

**10** COMPARE THE PAIR

A double bar graph shows Needed vs Delivered for three days. Needed: 8, 10, 12. Delivered: 8, 7, 12. What is the total shortage across the three days?

WORK IT OUT HERE

**11** COMPARE THE PAIR

A double bar graph for 'Needed vs Delivered' covers four days. Needed: 15, 20, 25, 30. Delivered: 15, 18, 22, 25. What is the total shortage for the four days?

WORK IT OUT HERE

**12** COMPARE THE PAIR

A double bar graph for 'Needed vs Delivered' spans five days. Needed: 30, 35, 40, 45, 50. Delivered: 28, 35, 35, 40, 45. What is the total shortage for the week?

WORK IT OUT HERE

**13** READ THE JUMP

A line graph shows the temperature at four equally spaced times of day: 5, 9, 12, 18 degrees. What was the biggest jump from one reading to the next?

WORK IT OUT HERE

**14** READ THE JUMP

A line graph shows tickets sold per hour at five hourly checkpoints: 8, 14, 17, 25, 28. What was the biggest one-hour rise?

WORK IT OUT HERE

**15** READ THE JUMP

A line graph tracks the water level at six hourly checkpoints: 12, 20, 23, 35, 50, 54 cm. What was the biggest one-hour rise across the afternoon?

WORK IT OUT HERE

**16** SUBTRACT FOR THE INTERVAL

A cumulative line graph shows total bottles handed out by end of day for Days 1–3 as 30, ?, 90 along a straight line. Day 2 is unmarked and must be derived from the line. How many bottles were handed out on Day 3 alone?

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**17** SUBTRACT FOR THE INTERVAL

A cumulative line graph shows total kits packed by end of day for Days 1–4 as 50, ?, 150, 200 along a straight line. Day 2 is unmarked. Day 3's kits were split between two teams in a 3:2 ratio. How many kits did the larger team pack on Day 3?

WORK IT OUT HERE

**18** SUBTRACT FOR THE INTERVAL

A cumulative line graph shows total meals delivered by end of day for Days 1–4 as 60, ?, 180, 240 along a straight line. Day 2 is unmarked. Day 3's meals were split between two teams in a 4:1 ratio. How many meals did the larger team deliver on Day 3?

WORK IT OUT HERE

**19** LINK TWO GRAPHS

Graph A is a cumulative line showing bottles delivered with end-of-Week 1 at 80 and end-of-Week 2 at 200. Graph B is a bar chart showing 4 teams worked in Week 2. How many bottles did each team deliver in Week 2?

WORK IT OUT HERE

**20** LINK TWO GRAPHS

Graph A is a cumulative line showing kits packed: end-of-Week 1 at 150 and end-of-Week 2 at 390. Graph B is a bar chart showing 8 teams worked in Week 2. How many kits did each team pack in Week 2?

WORK IT OUT HERE

**21** LINK TWO GRAPHS

Graph A is a cumulative line showing meals delivered: end-of-Week 1 at 210 and end-of-Week 2 at 560. Graph B is a bar chart showing 7 teams worked in Week 2. How many meals did each team deliver in Week 2?

WORK IT OUT HERE

**22** DATA DETECTIVE

A cumulative line graph shows total kits packed by end of day for Days 1–4: 40, 120, 180, 220. Phase 1 (Days 1–2) used 3 teams; Phase 2 (Days 3–4) used 5 teams. By how much did each team's per-day rate drop from Phase 1 to Phase 2?

WORK IT OUT HERE

**23** DATA DETECTIVE

A cumulative line graph shows total meals delivered by end of day for Days 1–4: 90, 210, 290, 330. Phase 1 (Days 1–2) used 5 teams; Phase 2 (Days 3–4) used 4 teams. By how much did each team's per-day rate drop from Phase 1 to Phase 2?

WORK IT OUT HERE

**24** DATA DETECTIVE

A cumulative line graph shows total bottles handed out by end of day for Days 1–6: 60, 120, 180, 210, 240, 270. Phase 1 (Days 1–3) used 4 teams; Phase 2 (Days 4–6) used 3 teams. By how much did each team's per-day rate drop from Phase 1 to Phase 2?

WORK IT OUT HERE

# Answer Key

Each answer comes with a hint that names the move. The tag says which video to rewatch if you are stuck.

**1. 12 cans** — *Read the Scale*

One bar — multiply the height in squares by the value of one square.

**2. 55 blankets** — *Read the Scale*

Convert each bar to blankets using height times scale, then combine — do the scaling before the adding.

**3. 64 items** — *Read the Scale*

Read each bar's height in squares, multiply each by the scale, then add the three totals.

**4. 53 juice boxes** — *Graph + Clue*

Decode Thursday from the clue first, then add the four daily values.

**5. 93 kits** — *Graph + Clue*

Use the clue to convert Monday into Friday's count, then sum all five daily values.

**6. 133 meals** — *Graph + Clue*

Find the smallest weekday from the graph, decode Saturday from clue one, then decode Sunday from clue two before adding the week.

**7. 15 toys** — *Decode the Scale, Then Combine*

Convert each bar to toys with the scale first, then subtract — never subtract the squares and forget to multiply.

**8. 18 boxes** — *Decode the Scale, Then Combine*

Multiply each bar by the scale to get boxes, then add the requested pair and subtract the other pair.

**9. 162 medals** — *Decode the Scale, Then Combine*

Decode each symbol's value using the key, then add up the symbol counts and multiply at the end.

**10. 3 units** — *Compare the Pair*

For each pair, take needed minus delivered (use 0 when the need was met), then add the gaps.

**11. 10 units** — *Compare the Pair*

Compare each day's pair, take the shortfall (0 when delivered meets needed), then total the four gaps.

**12. 17 units** — *Compare the Pair*

Read each pair off the graph, find the day-by-day gap (zero on a met day), then sum every gap.

**13. 6 degrees** — *Read the Jump*

Write down each consecutive change, then pick the largest — not the largest value on the graph.

**14. 8 tickets** — *Read the Jump*

Subtract each point from the one before it to list every jump, then take the maximum of those jumps.

**15. 15 cm** — *Read the Jump*

Walk the points in order and subtract each from the next to get five jumps, then choose the biggest one.

**16. 30 bottles** — *Subtract for the Interval*

Recover Day 2's running total as the midpoint of its neighbours on the straight line, then subtract Day 2's total from Day 3's total.

**17. 30 kits** — *Subtract for the Interval*

Find Day 2's cumulative as the midpoint of Days 1 and 3, subtract to get Day 3's amount, then take the 3:2 larger share.

**18. 48 meals** — *Subtract for the Interval*

Midpoint Days 1 and 3 to recover Day 2, subtract to isolate Day 3's amount, then split that amount 4:1.

**19. 30 bottles per team** — *Link Two Graphs*

Use Graph A to subtract the two cumulative readings into the Week 2 interval, then divide by Graph B's team count.

**20. 30 kits per team** — *Link Two Graphs*

Subtract Week 1's cumulative from Week 2's to get Week 2's total, then divide by the team count from the bar graph.

**21. 50 meals per team** — *Link Two Graphs*

Subtract the two cumulative endpoints to recover Week 2's total, then divide by the count from the second graph.

**22. 10 kits per team per day** — *Data Detective*

The cumulative graph hides each phase's total — start by recovering Phase 1's total from the early endpoint, then turn each phase into a per-team-per-day rate before you compare.

**23. 6 meals per team per day** — *Data Detective*

Subtract along the cumulative line to isolate each phase's total, divide each by its (days × teams), then subtract the Phase 2 rate from the Phase 1 rate.

**24. 5 bottles per team per day** — *Data Detective*

Use the cumulative endpoints to peel off each phase's total, divide each by (days × teams) for two rates, and subtract Phase 2's rate from Phase 1's.