DATA101 Comprehensive Long Quiz - Set B (Answer Key)

50-Point Assessment Document (Answer Key)

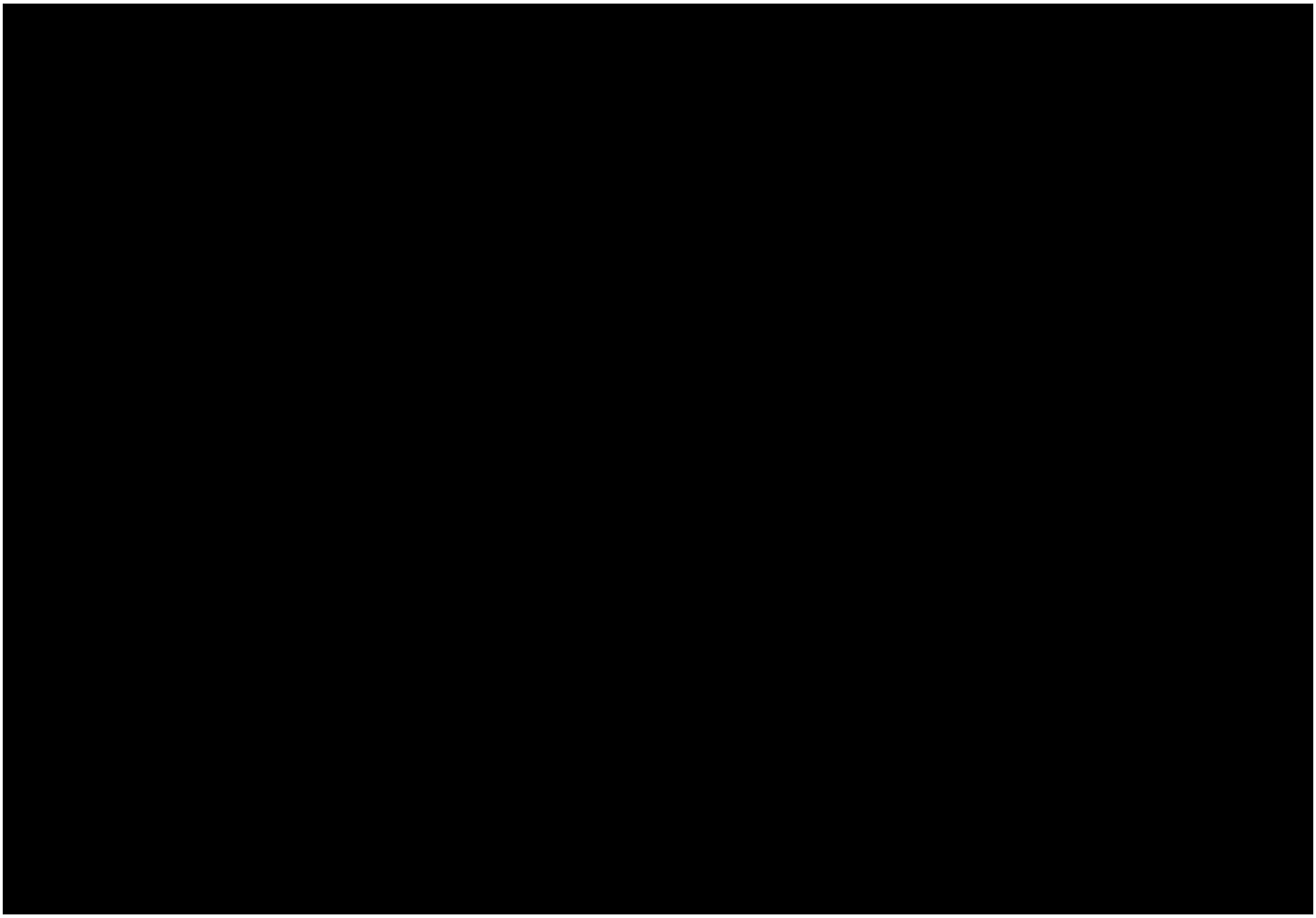
DATA 101: Data Visualization

DE LA SALLE UNIVERSITY

Long Quiz (50 points)

Name: _____ ID: _____ Date: _____

Instructions: Complete all questions. Use only one answer per matching item. Keep responses legible.

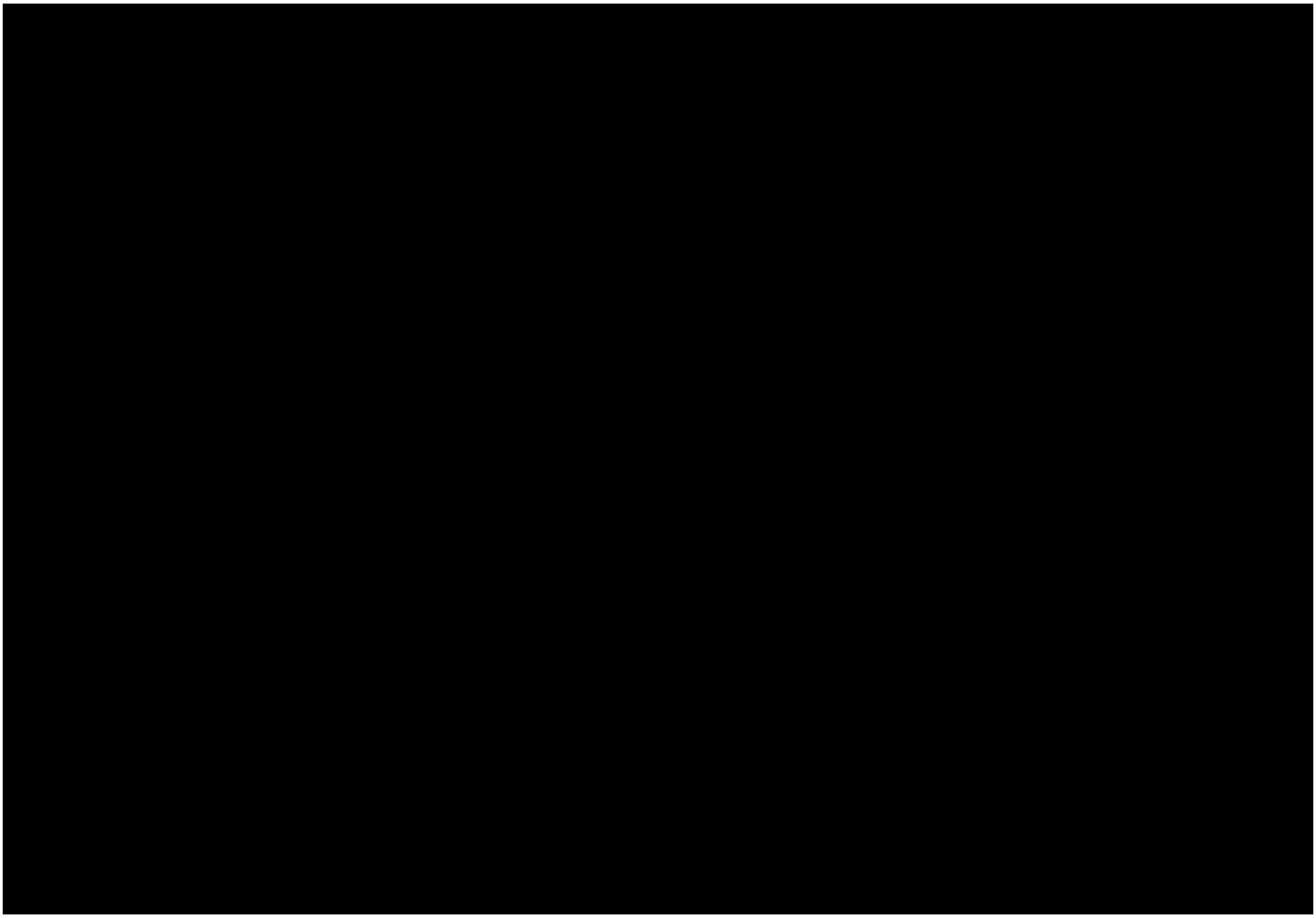


1) MCQ (2 PTS)

Which mapping is least appropriate for precise magnitude comparison?

- A) Position on a shared baseline
- B) Length along aligned axes
- C) Hue hue-shading differences
- D) Ordered bar endpoints

Answer: C.

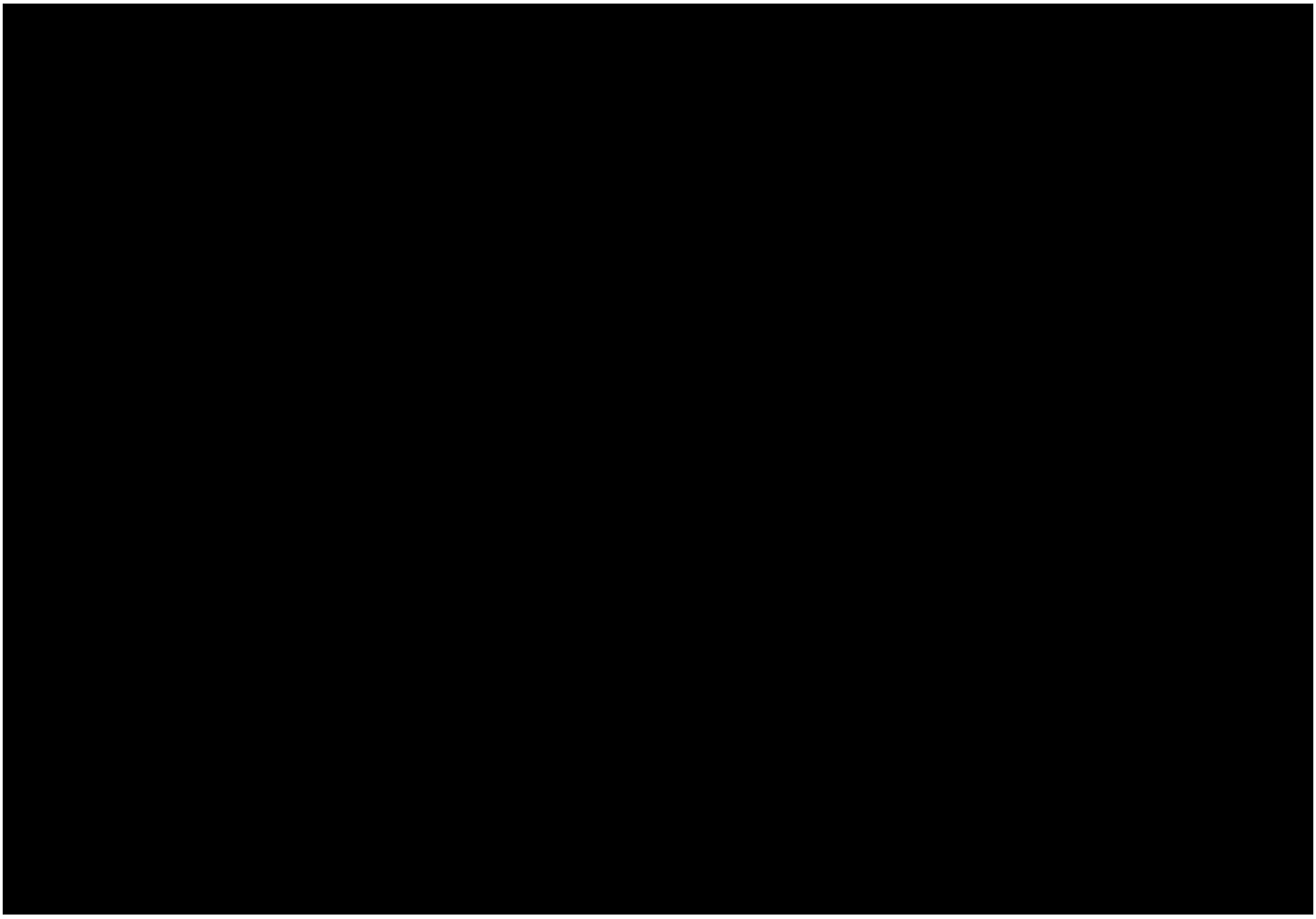


2) MULTIPLE ANSWERS (2 PTS)

Choose all that are valid responses to the chart-reading rule “if attention is limited, redu

- A) Keep one strong visual hierarchy and limit color categories in first view.
- B) Add dual-axis to expose hidden patterns in one panel.
- C) Use direct labels where possible instead of dense legend hunting.
- D) Add six new decorative icons for storytelling emphasis.
- E) Group related marks with proximity and shared space.

Answer: A, C, E.

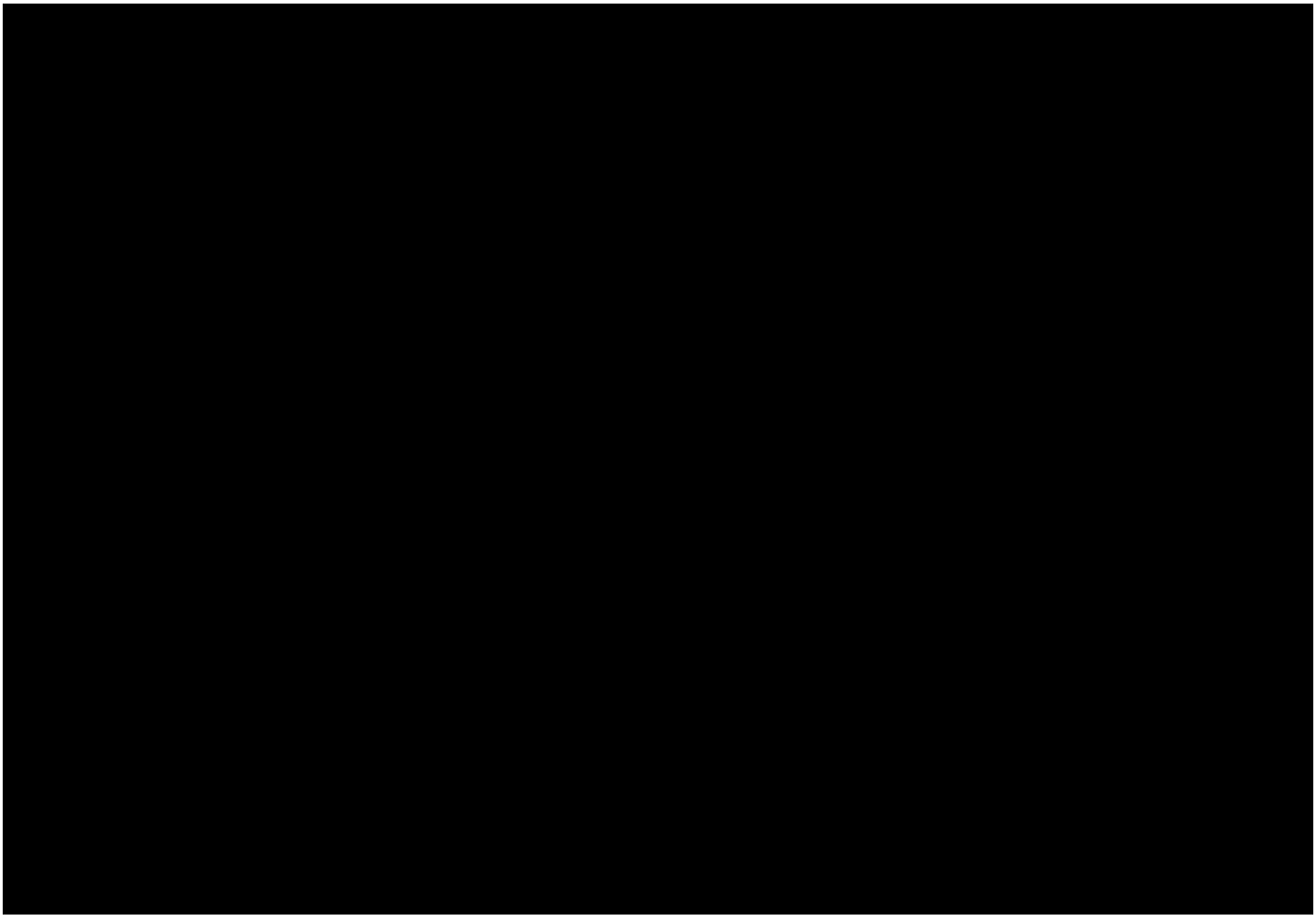


3) MCQ (2 PTS)

A chart displays a diverging political preference with a meaningful midpoint near zero. W
correct?

- A) Qualitative palette.
- B) Sequential low-to-high palette.
- C) Diverging palette anchored at midpoint.
- D) Binary red/green pair for all classes.

Answer: C.

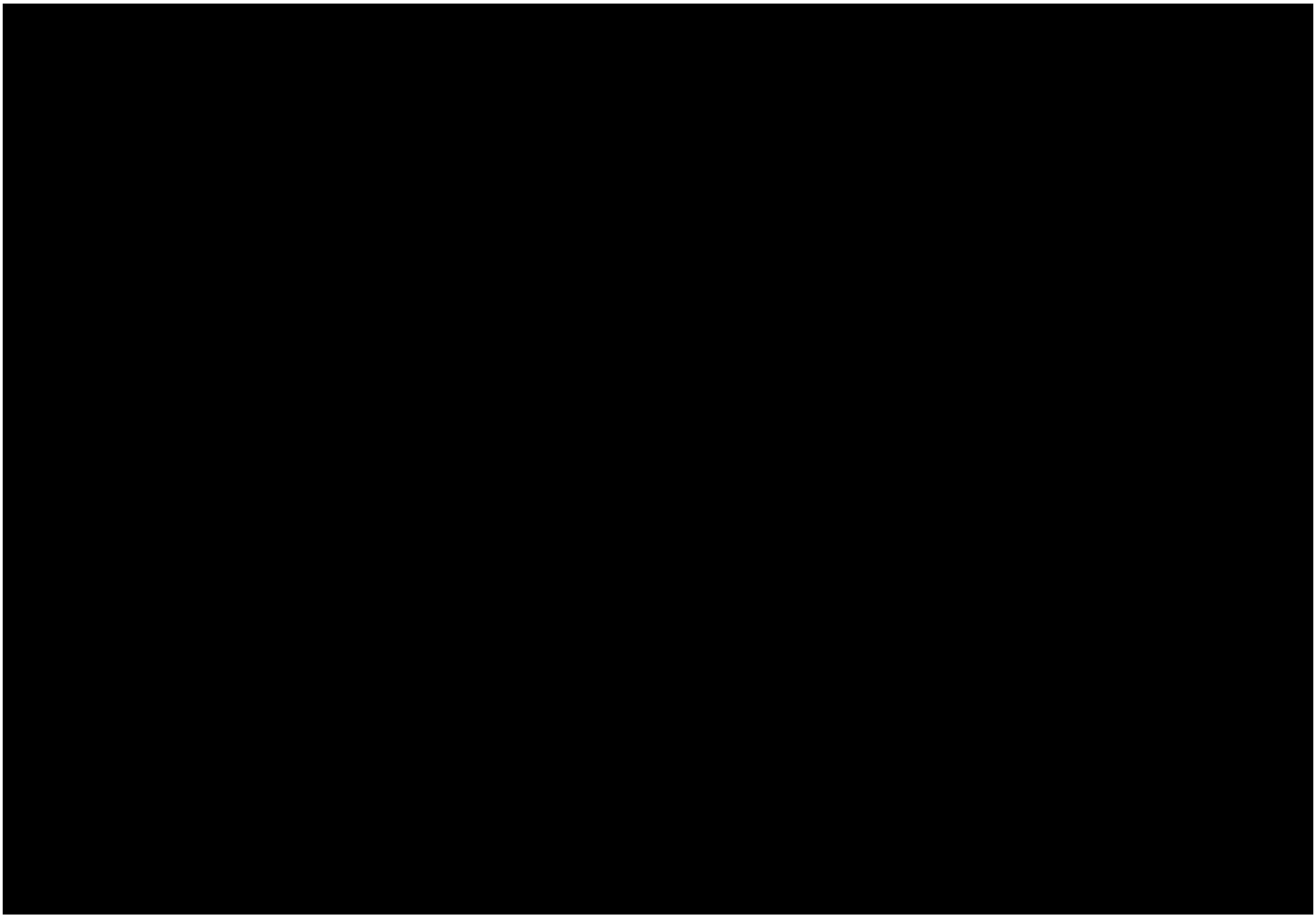


4) RANKING (1 PT)

Order the perceptual pitfalls from highest to lowest impact on trust in a report:

Truncated y-axis, 2) inconsistent unit labels, 3) rainbow color ramp, 4) tiny legend.

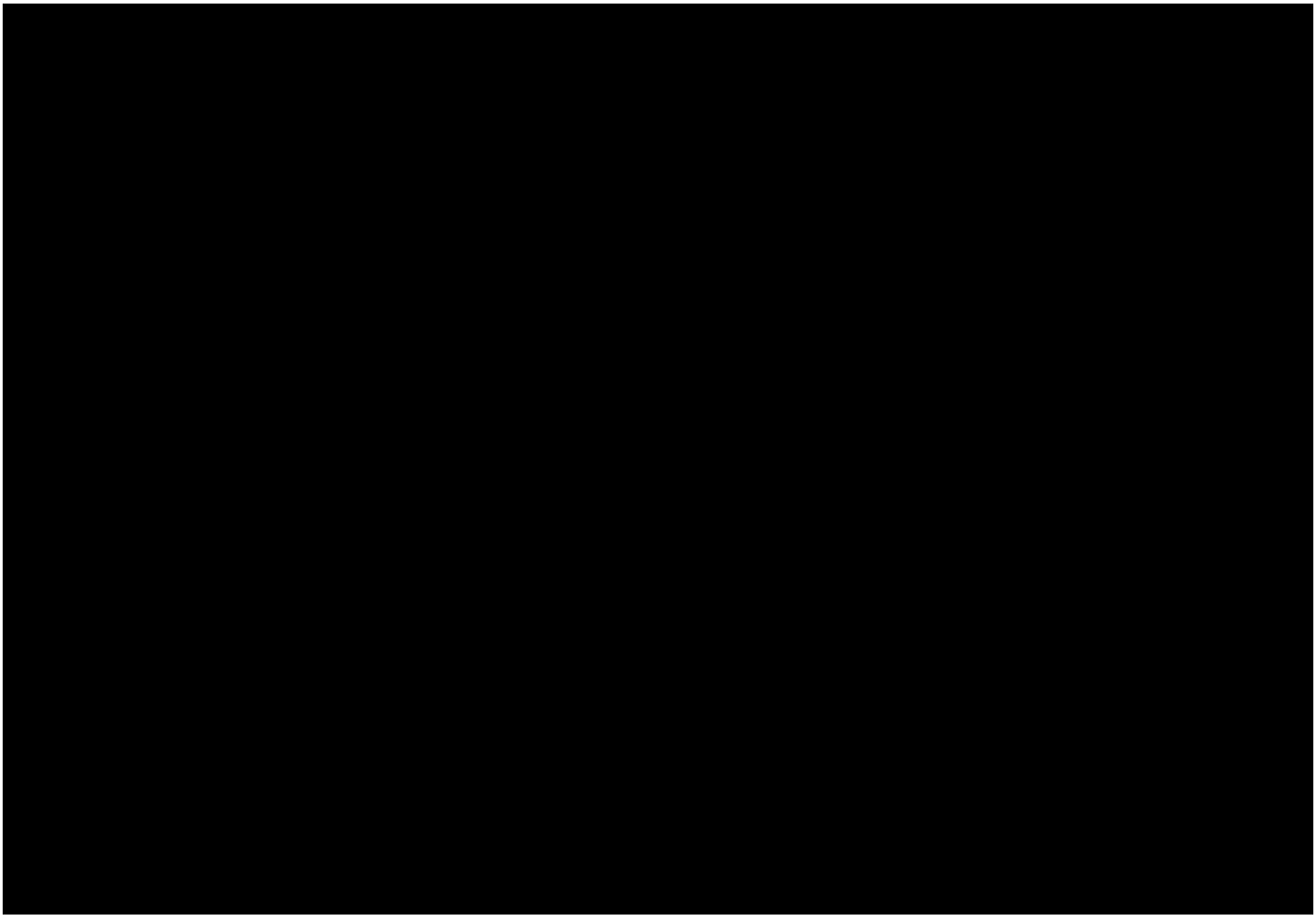
Answer:



5) SHORT ANSWER (1 PT)

List one reliability check for color interpretation in a map/chart report.

Answer: Ensure color semantics are consistent with variable meaning and provide redu
(pattern/labels/annotation) rather than relying on hue alone, plus CVD-safe contrast ch

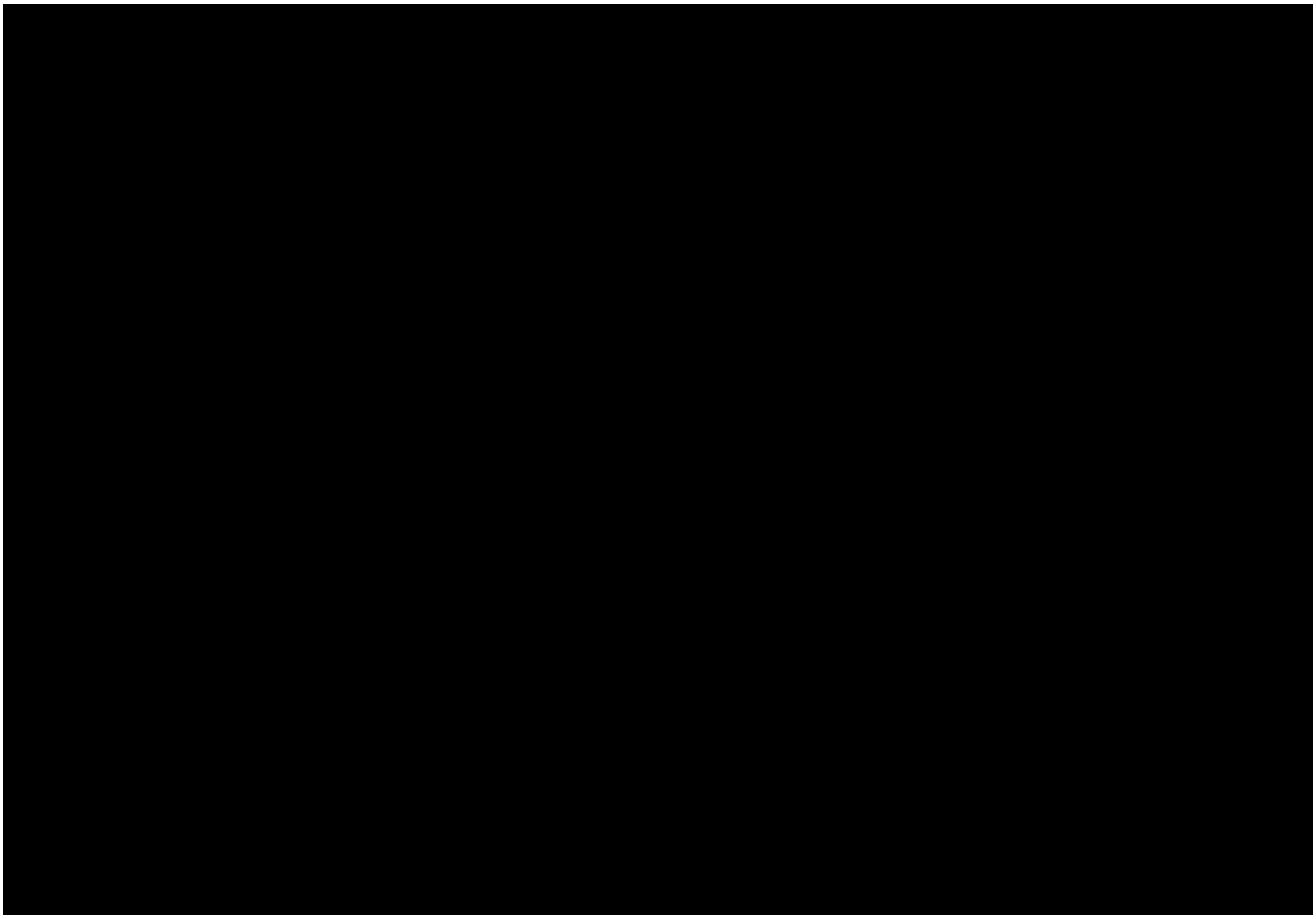


6) MCQ (2 PTS)

You have 6 groups across 24 months with irregular missing dates and campaign interv who improved most and who regressed fastest. Best approach?

- A) Single multi-line with all series and arbitrary interpolation.
- B) Slope or indexed mini-trend comparison after harmonized time grid and normaliz
- C) Two pie charts: before and after.
- D) Boxplot per month and ignore campaign dates.

Answer: B.

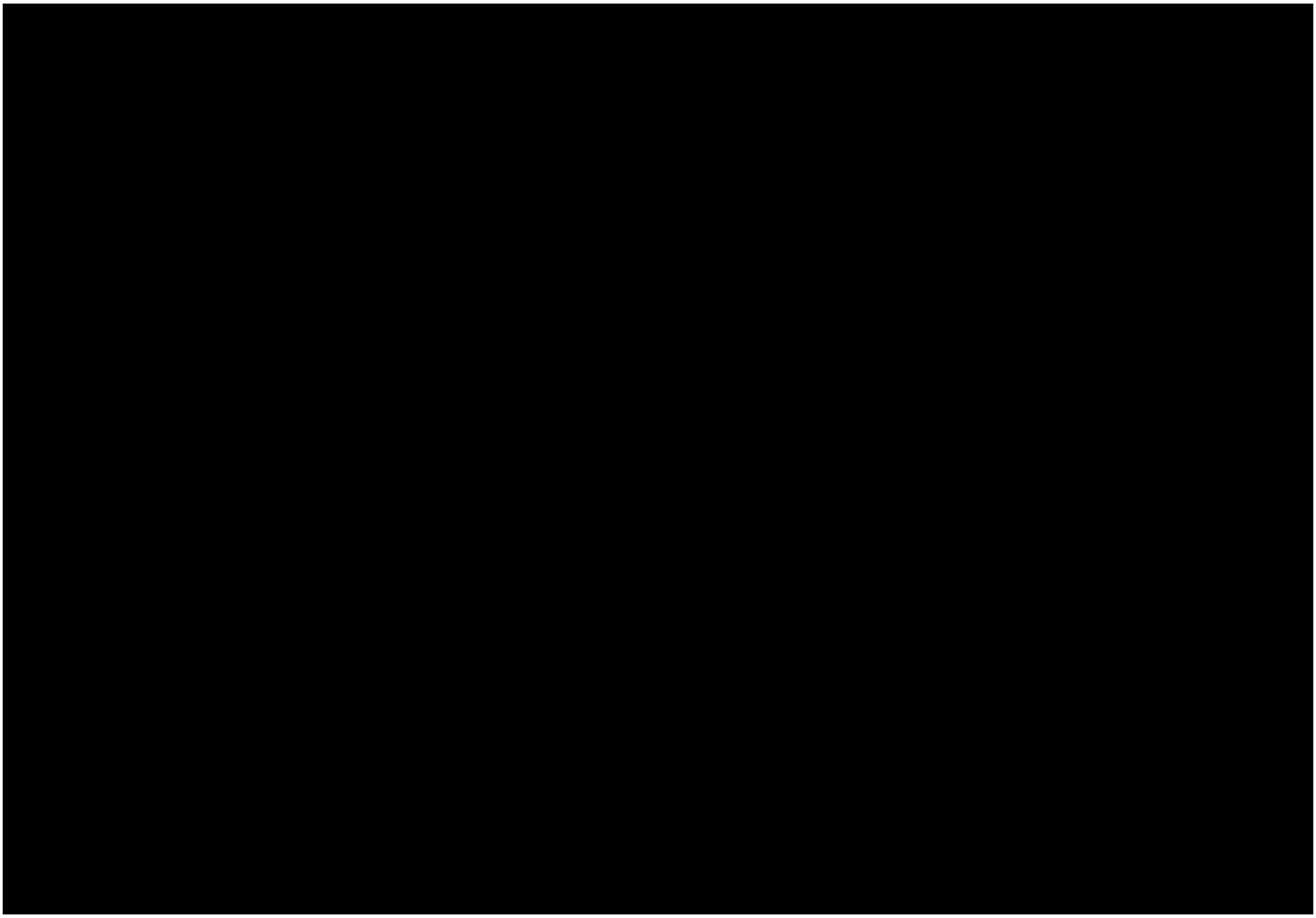


7) MULTIPLE ANSWERS (2 PTS)

For distribution comparison across groups, select all valid methods.

- A) Match binning strategy across groups before first-pass visual claims.
- B) Use median-only charts when tails are central to interpretation.
- C) Report n and scale choices in interpretation notes.
- D) Prefer violin over histogram by default for small n.
- E) Use log or Box-Cox transforms when skew is severe and interpretation remains d

Answer: A, C, E.



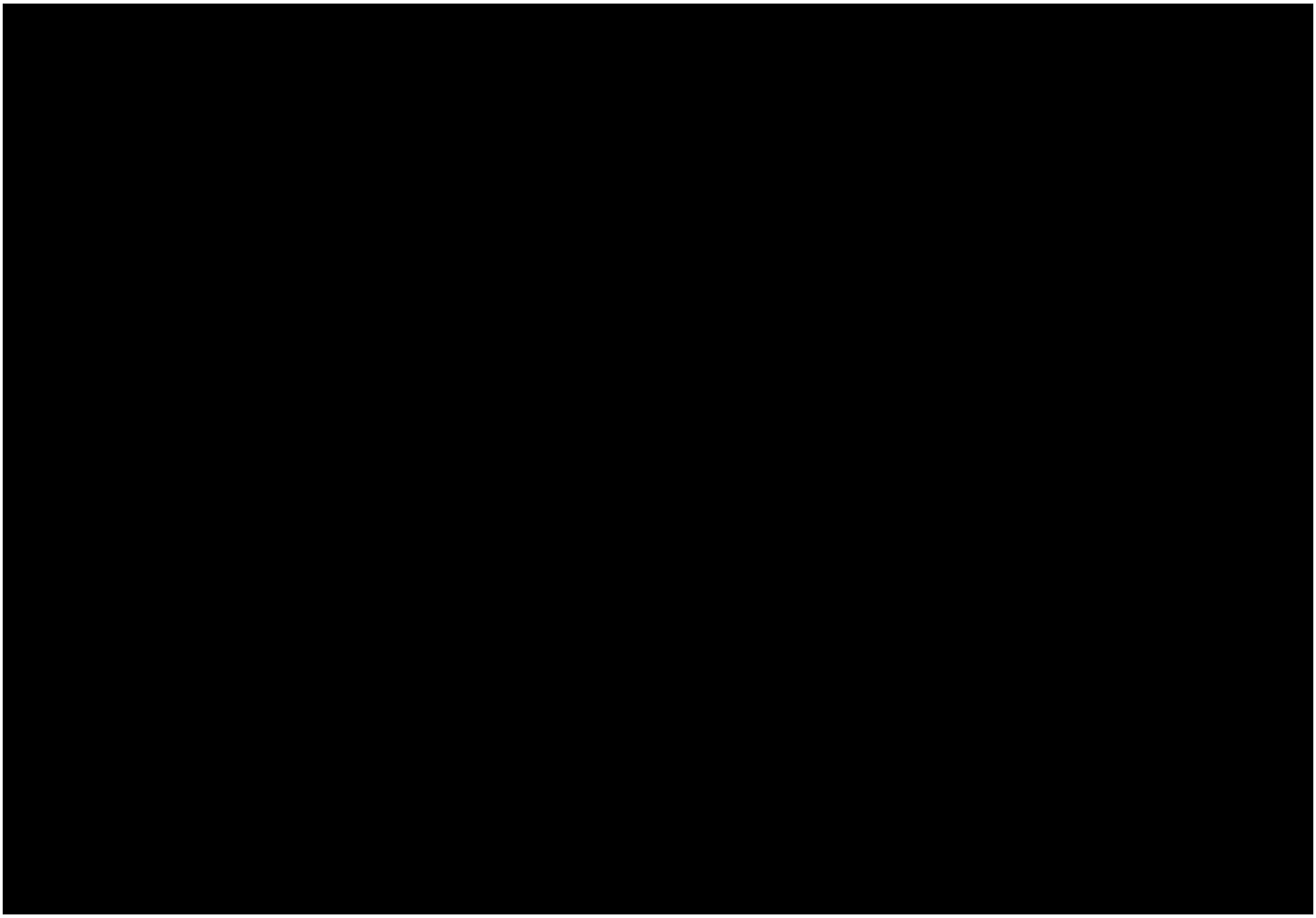
8) MATCHING (1 PT)

Match each goal to the first table-based view choice.

- Detect group medians and trend shifts over time.
- Detect heavy-tailed spread shifts.
- Detect rank changes only for top 5 entities.

- i) Small multiples + trend/quantile panel.
- ii) Distribution glyph (violin/box with CI or whiskers).
- iii) Focused slope/ranker chart after top-k filtering.

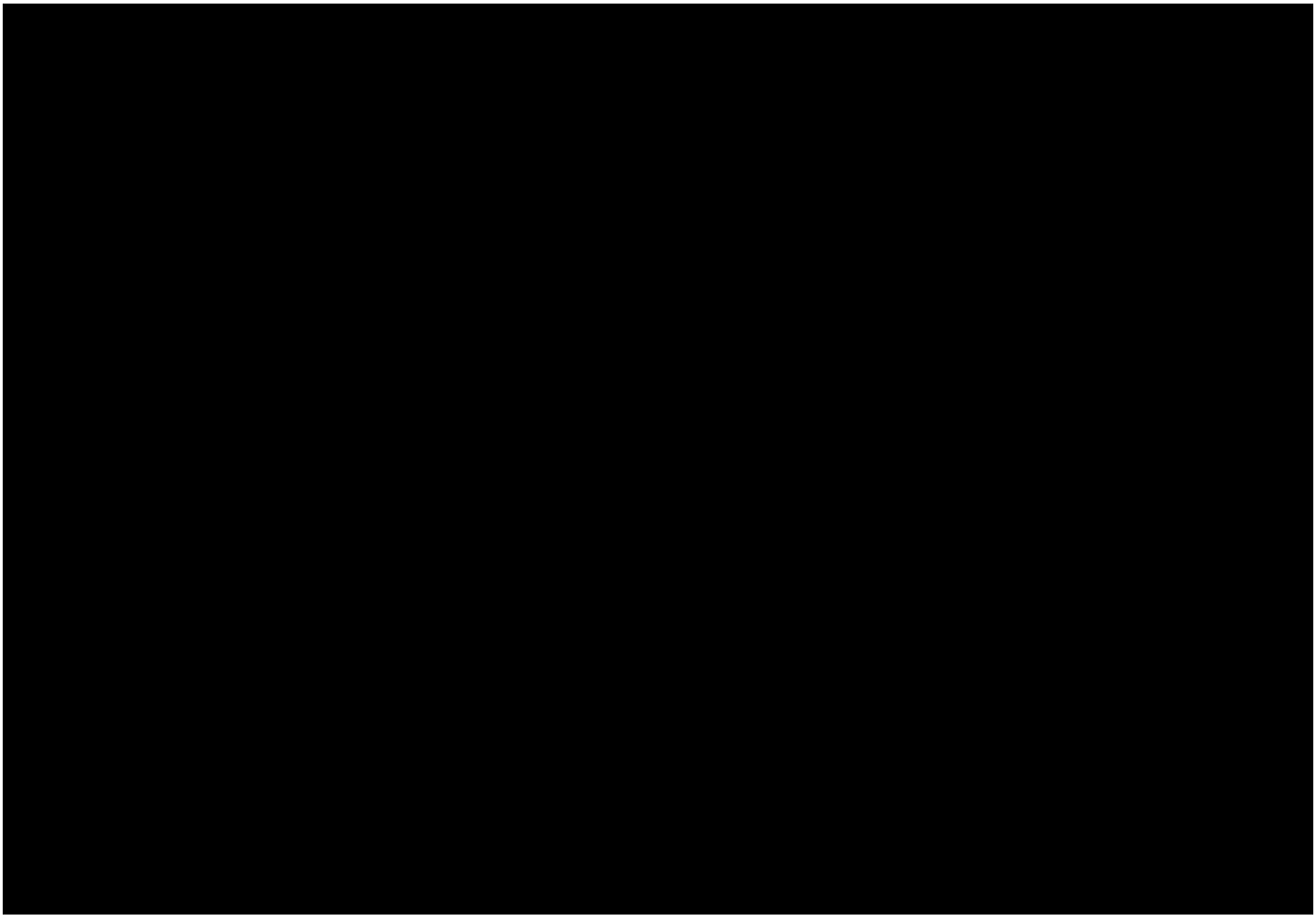
Answer: 1→i, 2→ii, 3→iii.



9) SHORT ANSWER (2 PTS)

A stakeholder asks for "fastest changing cohorts" using a dataset with huge within-grc single preprocessing guard should precede your chart choice?

Answer: Stabilize sampling intervals and align all observations to an explicit time basis irregular intervals) so slope/rank calculations are comparable across cohorts.

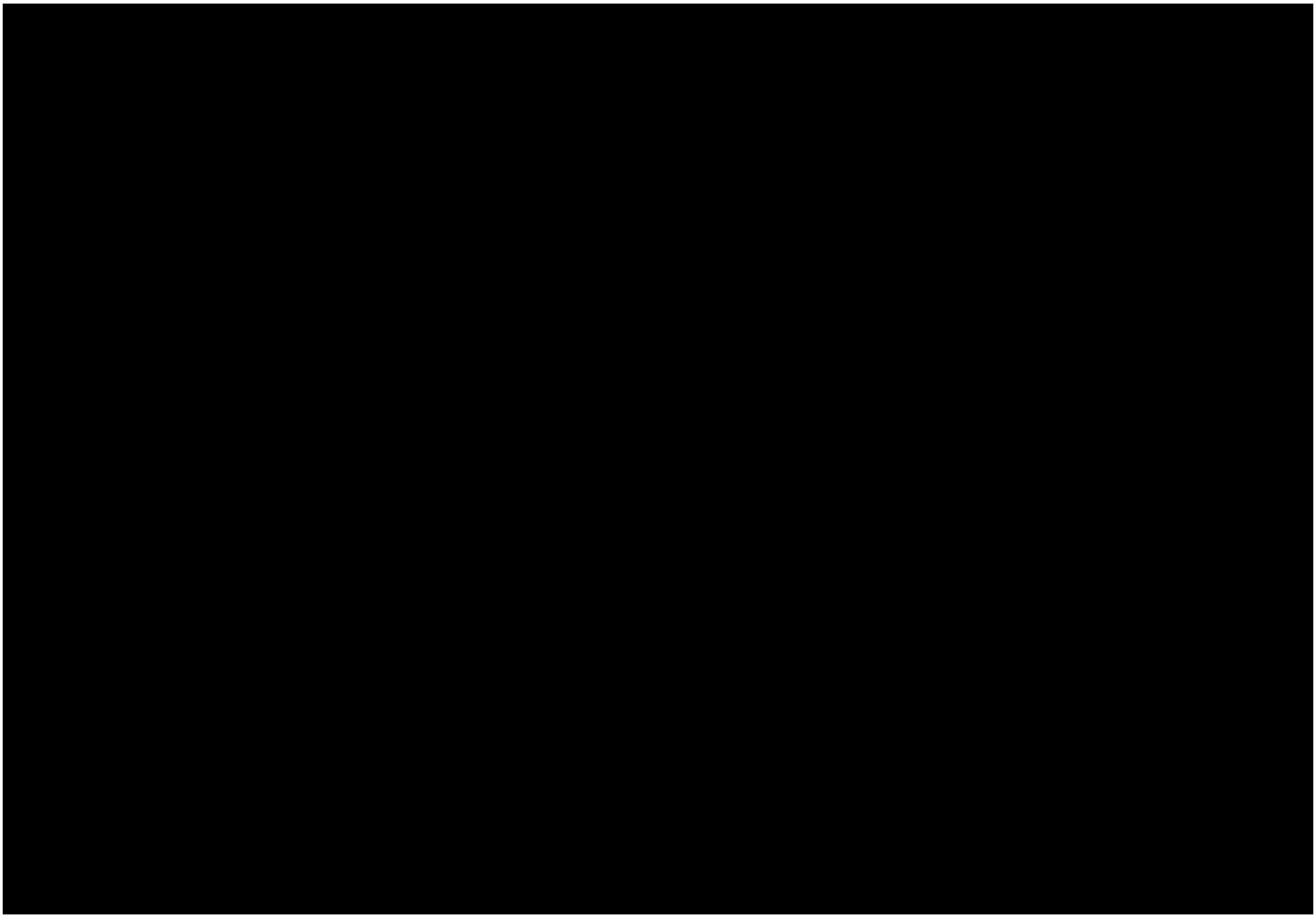


10) RANKING (1 PT)

Rank these tasks by the degree of information loss if forced into a single chart from mo

- A) Compare two cohorts’ medians by month.
- B) Show outlier bursts for each cohort.
- C) Compare within-cohort variance and spread change.
- D) Identify the fastest-growing and fastest-declining entities.

Answer: 1) C, 2) B, 3) D, 4) A.

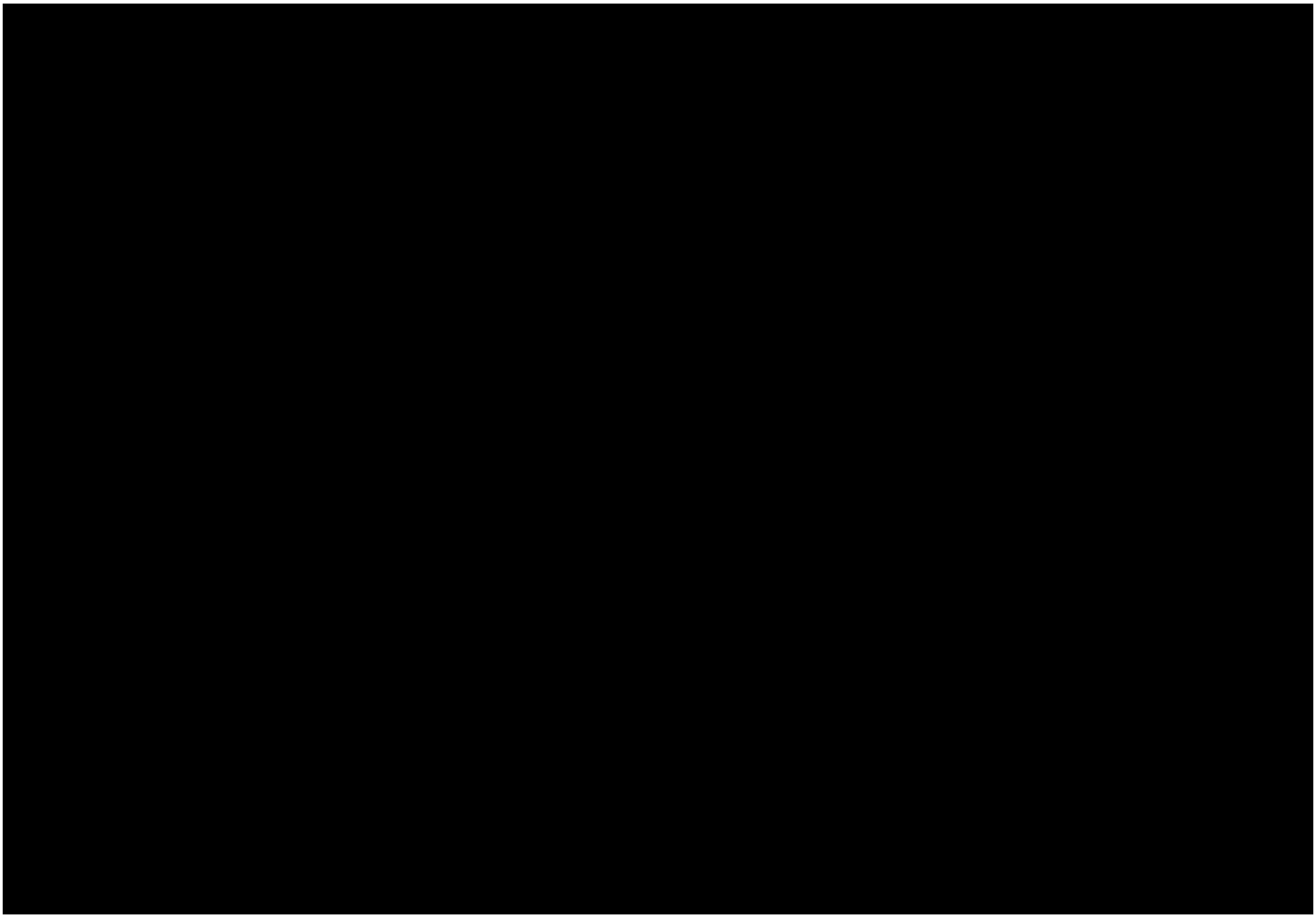


11) MCQ (2 PTS)

An ops room needs shared state and role-specific views. Best first-pass composition?

- A) Duplicate full dashboard for each role.
- B) Keep only one global chart with all controls open.
- C) Overview strip + diagnostic modules + action lane, with progressive disclosure.
- D) Separate pages and no shared interactions.

Answer: C.

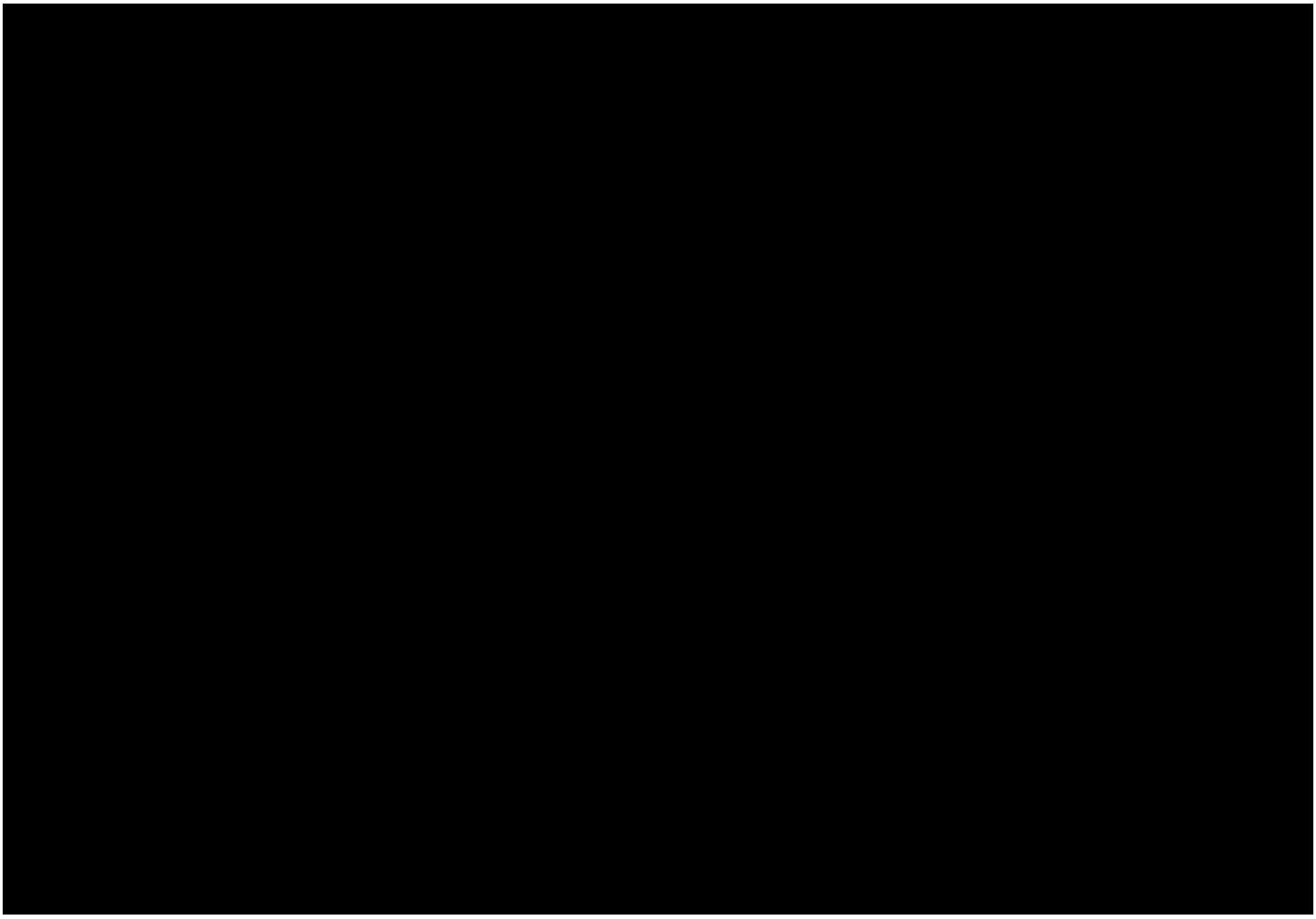


12) MULTIPLE ANSWERS (1 PT)

Which changes reduce dashboard ambiguity?

- A) Centralized scale registry for metric semantics.
- B) One state store shared across coordinated views.
- C) Hide infrequent actions under advanced controls.
- D) Separate unrelated filters per view by default.
- E) Reuse a single tooltip format across every module.

Answer: A, B, C, E.



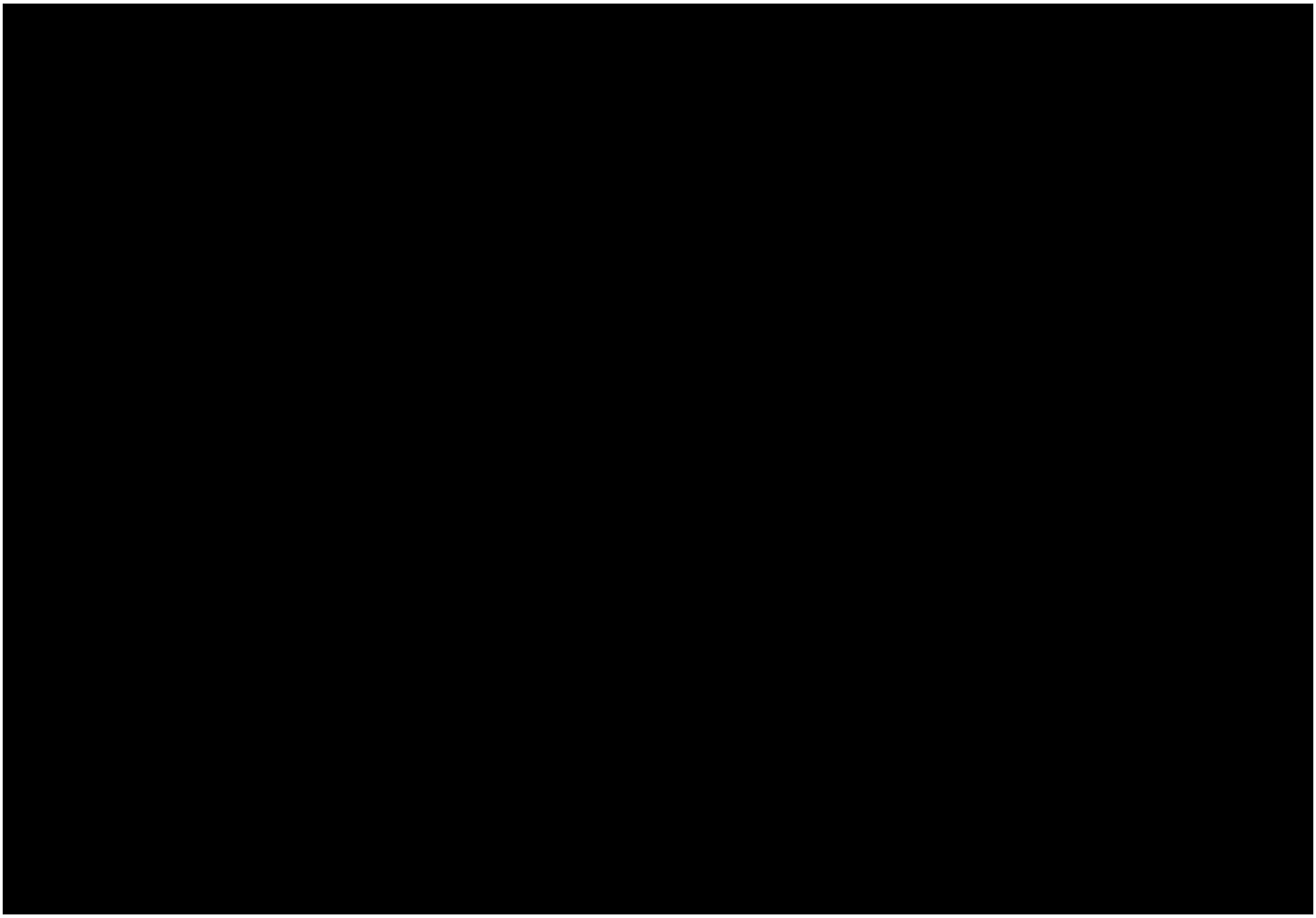
13) MATCHING (1 PT)

Match each pattern to intended outcome.

- Overview then decision lanes.
- Hide/show controls by intent.
- Operative cockpit with synchronized interactions.

- i) reduce cognitive split between context and action.
- ii) preserve shared analytical continuity.
- iii) reduce visual noise and protect first load speed.

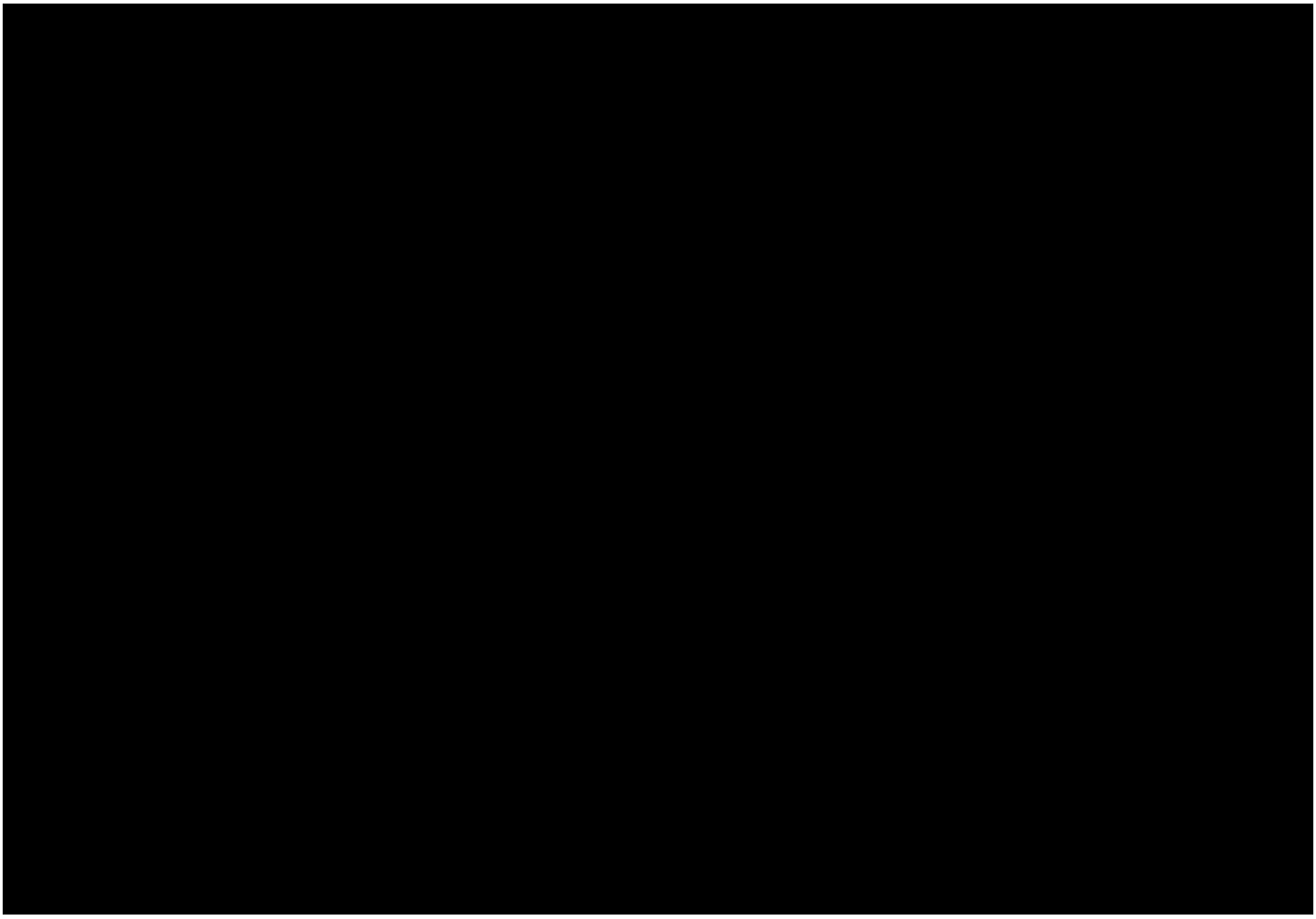
Answer: 1→i, 2→iii, 3→ii.



14) SHORT ANSWER (2 PTS)

A dashboard has 5 KPIs, 4 actions, and 8 filters but users complain about fatigue. Spe
versus hidden controls.

Answer: Keep high-signal KPIs + current state/time horizon visible; expose secondary
drawers and reveal deeper diagnostics only after user intent or drill state so working se
default.

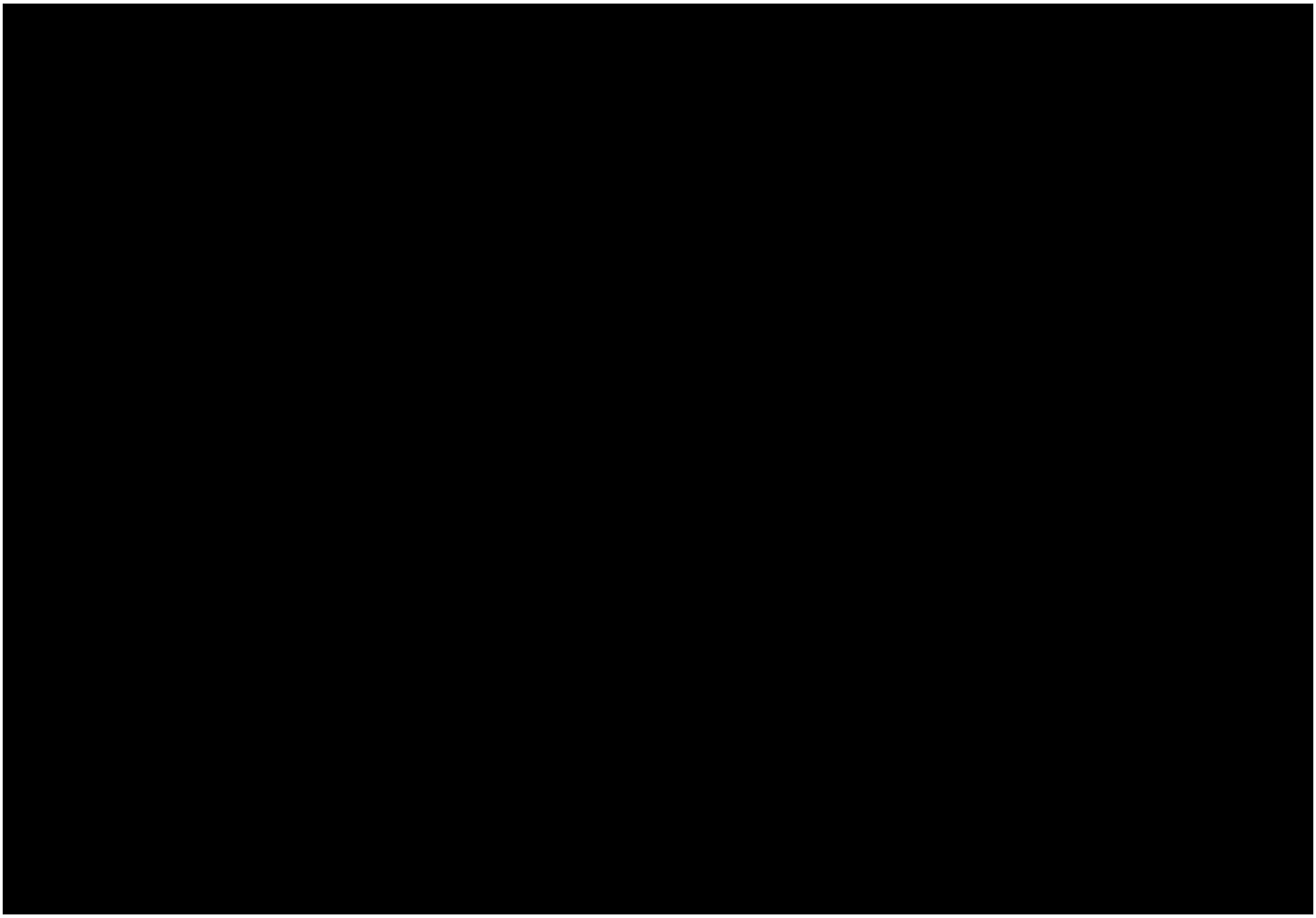


15) MCQ (1 PT)

You need community structure + bridge detection on 25k sparse nodes for executives.

- A) Node-link only, no edge weight.
- B) Matrix only, no ordering.
- C) Hybrid node-link overview + matrix for dense clusters.
- D) Treemap of degree counts only.

Answer: C.

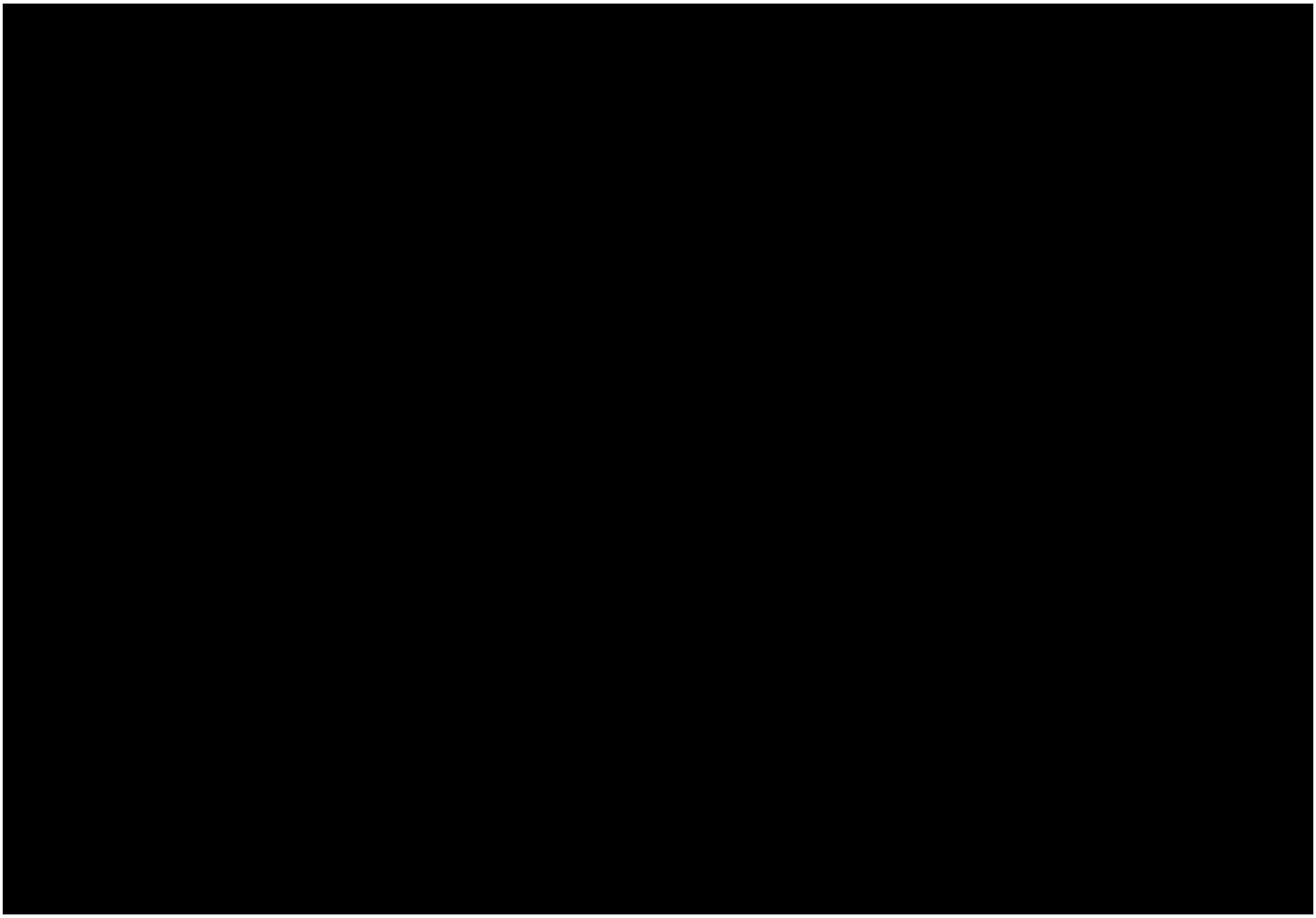


16) MULTIPLE ANSWERS (1 PT)

Select all valid reasons to add a matrix view alongside node-link.

- A) Dense/near-complete regions create entangled edge crossings.
- B) Need to inspect block structure and co-membership.
- C) Need intuitive path tracing at first pass for stakeholders.
- D) Need to inspect asymmetry and edge direction.
- E) Need to keep node labels always visible without hover.

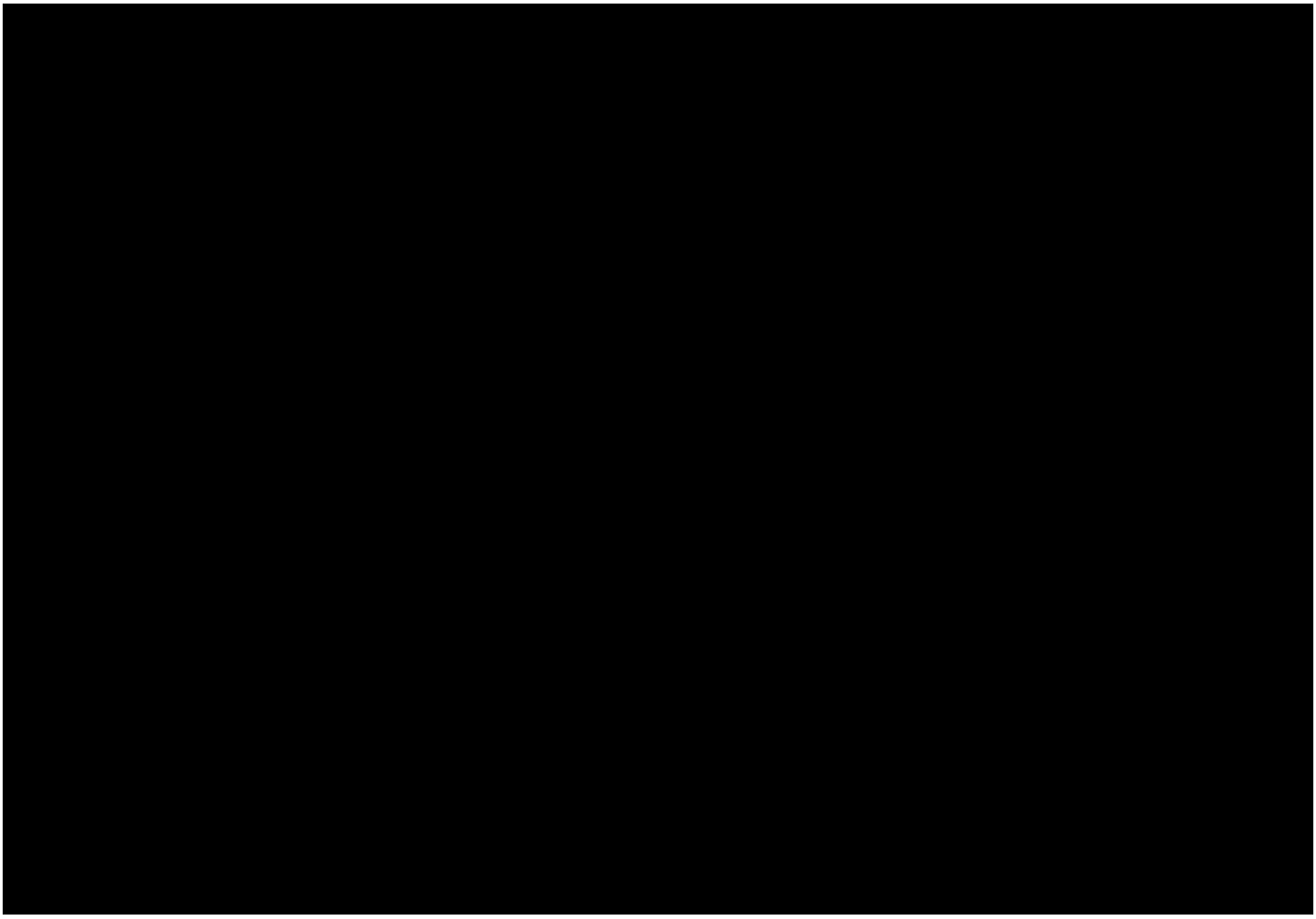
Answer: A, B.



17) SHORT ANSWER (2 PTS)

For directed-signed graphs, which fields are required and how should polarity and stre
encoding?

Answer: Use source, target, weight, and sign/polarity (plus optional time/type fields); e
hue/arrow orientation and strength via line width/opacity/brightness so channels do nc
magnitude.



18) MATCHING (1 PT)

Match task and graph layout.

- Report allocation share by branch.
- Highlight bridge nodes and cut-edges.