Height Comparison Figures: Shared Baseline and Proportion Scale

Original tasks 1, 2, 3 / complete keys

Task 1

On a shared baseline with tick marks at 0, 1, 2, 3, 4 units, draw figure A at 2 units and figure B at 3 units. Then draw figure C at 2.5 units. Which figure is tallest and which is shortest?

Answer: Figure B is tallest (3 units), figure C is middle (2.5 units), and figure A is shortest (2 units).

Reason: The tick marks define height in units. B's top is at the 3-unit tick, C's top is halfway between 2 and 3, and A's top is at the 2-unit tick.

Check: Use the scale bar to measure each figure's height: A=2, C=2.5, B=3. Confirm all feet touch the baseline.

Task 2

A shared baseline has tick marks at 0, 1, 2, 3, 4, 5 units. Figure X is at 4 units and figure Y is at 2 units. Draw figure Z that is 1 unit taller than Y but 1 unit shorter than X. What is Z's height?

Answer: Figure Z is at 3 units.

Reason: Y is 2 units, so 1 unit taller is 3 units. X is 4 units, so 1 unit shorter is 3 units. Both conditions give 3 units.

Check: Locate the 3-unit tick on the axis. Draw Z with feet on baseline and top at that tick. Use the scale bar to confirm Z is 3 units.

Task 3

On a shared baseline with tick marks at 0, 1, 2, 3, 4 units, draw three silhouettes: P at 1 unit, Q at 2.5 units, and R at 4 units. Then draw S at 3 units. List the figures in order from shortest to tallest.

Answer: Shortest to tallest: P (1 unit), Q (2.5 units), S (3 units), R (4 units).

Reason: Compare the tick values: $1 < 2.5 < 3 < 4$. The figure with the lowest top is shortest.

Check: Measure each figure's height with the scale bar and sort the values. Ensure all feet are on the baseline.

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Original tasks 4 / complete keys

Task 4

A shared baseline has tick marks at 0, 1, 2, 3, 4, 5 units. Figure M is at 3.5 units. Draw figure N that is 0.5 units shorter than M. What is N's height, and how do you locate it on the axis?

Answer: Figure N is at 3 units. Locate the 3-unit tick mark on the axis.

Reason: M is 3.5 units. Subtracting 0.5 units gives 3 units. The 3-unit tick is a marked position.

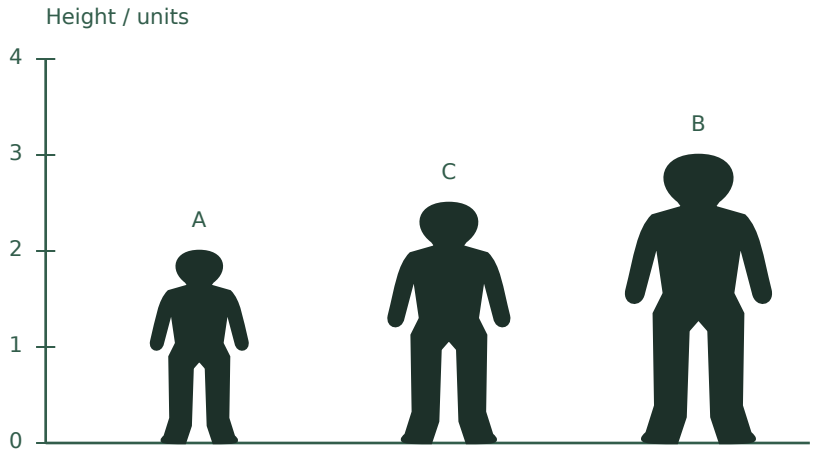
Check: Draw N with feet on baseline and top at the 3-unit tick. Use the scale bar to confirm N is 3 units, which is 0.5 units less than M.

Height Comparison Figures: Shared Baseline and Proportion Scale

Task 1 / answer measured construction

Task 1 / Shared baseline; A=2, C=2.5, B=3; B tallest, A shortest

Measured construction guide. Only labelled dimensions are fixed; use the original task for all other instructions.



axis maximum: 4 units

A: 2 units above baseline

C: 2.5 units above baseline

B: 3 units above baseline

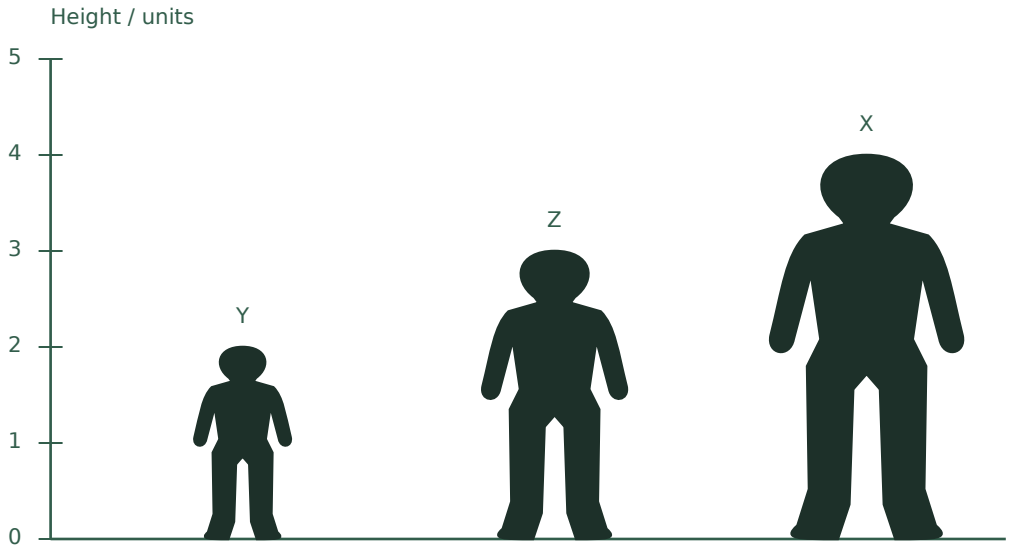
Abstract source units; this diagram makes no centimetre claim.

Height Comparison Figures: Shared Baseline and Proportion Scale

Task 2 / answer measured construction

Task 2 / Shared baseline; X=4, Y=2, Z=3; Z is 1 taller than Y and 1 shorter than X

Measured construction guide. Only labelled dimensions are fixed; use the original task for all other instructions.



axis maximum: 5 units

Y: 2 units above baseline

Z: 3 units above baseline

X: 4 units above baseline

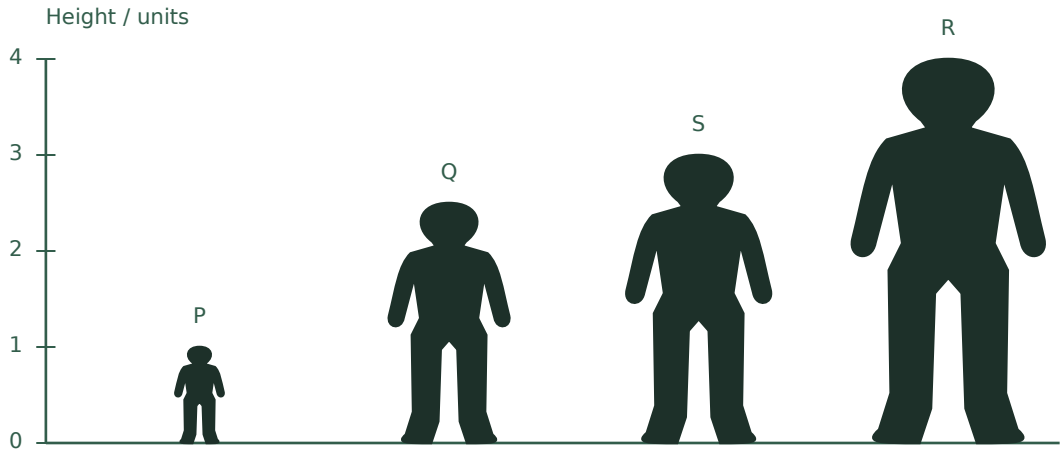
Abstract source units; this diagram makes no centimetre claim.

Height Comparison Figures: Shared Baseline and Proportion Scale

Task 3 / answer measured construction

Task 3 / Shared baseline; P=1, Q=2.5, S=3, R=4; order P<Q<S<R

Measured construction guide. Only labelled dimensions are fixed; use the original task for all other instructions.



axis maximum: 4 units

P: 1 units above baseline

Q: 2.5 units above baseline

S: 3 units above baseline

R: 4 units above baseline

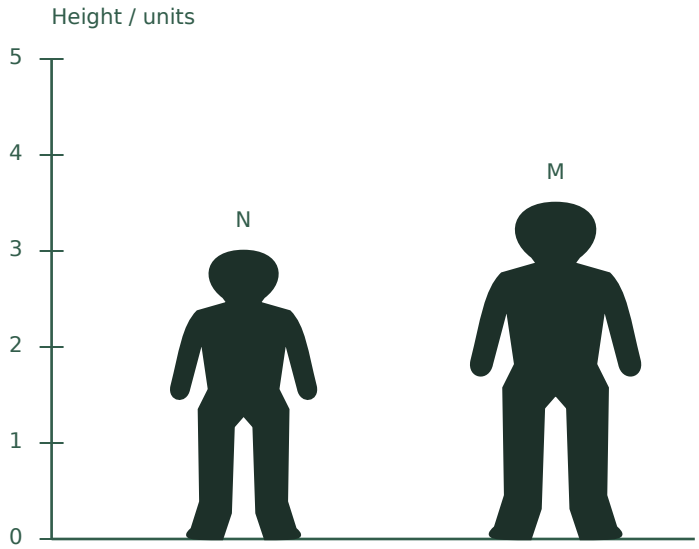
Abstract source units; this diagram makes no centimetre claim.

Height Comparison Figures: Shared Baseline and Proportion Scale

Task 4 / answer measured construction

Task 4 / Shared baseline; M=3.5, N=3; N located at 3-unit tick

Measured construction guide. Only labelled dimensions are fixed; use the original task for all other instructions.



axis maximum: 5 units

N: 3 units above baseline

M: 3.5 units above baseline

Abstract source units; this diagram makes no centimetre claim.

Height Comparison Figures: Shared Baseline and Proportion Scale

Original rubric / reflection

- [ ] All figures share the same horizontal baseline.
- [ ] Each figure's top aligns with the intended tick mark or estimated fractional position.
- [ ] The scale bar is used consistently to define height units.
- [ ] Silhouette proportions (e.g., head-to-body ratio) are consistent across figures.
- [ ] Relative heights match the specified values within a reasonable estimation error.

Reflection: What did you check, what did you change, and what will you try next?