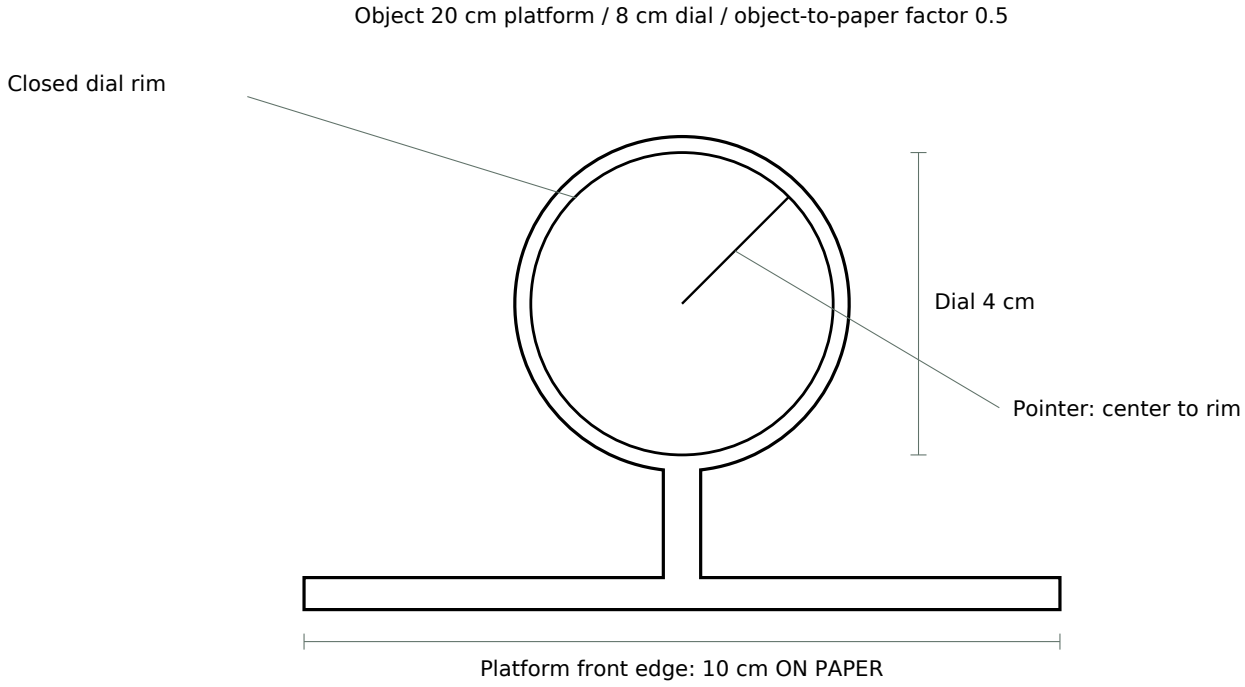
Contour Drawing of Weighing Scales: A Line-Only Study

WORKED EXAMPLE / CHECKED PAPER DIMENSIONS

A scale has a circular dial with a rim diameter of 8 cm and a rectangular platform 20 cm wide and 15 cm deep. Draw the contour line of the scale from a front view, including the dial rim and platform front edge. Use a scale of 1 cm on the object to 0.5 cm on paper.



Print at 100% for the stated PAPER lengths. Gray lines are measurement/label guides.

On paper, the dial rim diameter is 4 cm (8 x 0.5), and the platform front edge is 10 cm long (20 x 0.5). Draw the front edge horizontally, with the circular rim centered above it and two visible vertical supports connecting the platform to the dial housing. The given 15 cm platform depth is not represented by a front-edge length in this front view. Close the dial rim as a separate continuous loop if a pen lift is needed. Add the visible pointer last, from the center to the rim edge. Under this lesson's full-radius pointer convention, its drawn length is 2 cm, half of the 4 cm rim diameter; the prompt does not specify its direction. Draw no shading, dial markings or internal mechanics.

REVIEW RUBRIC

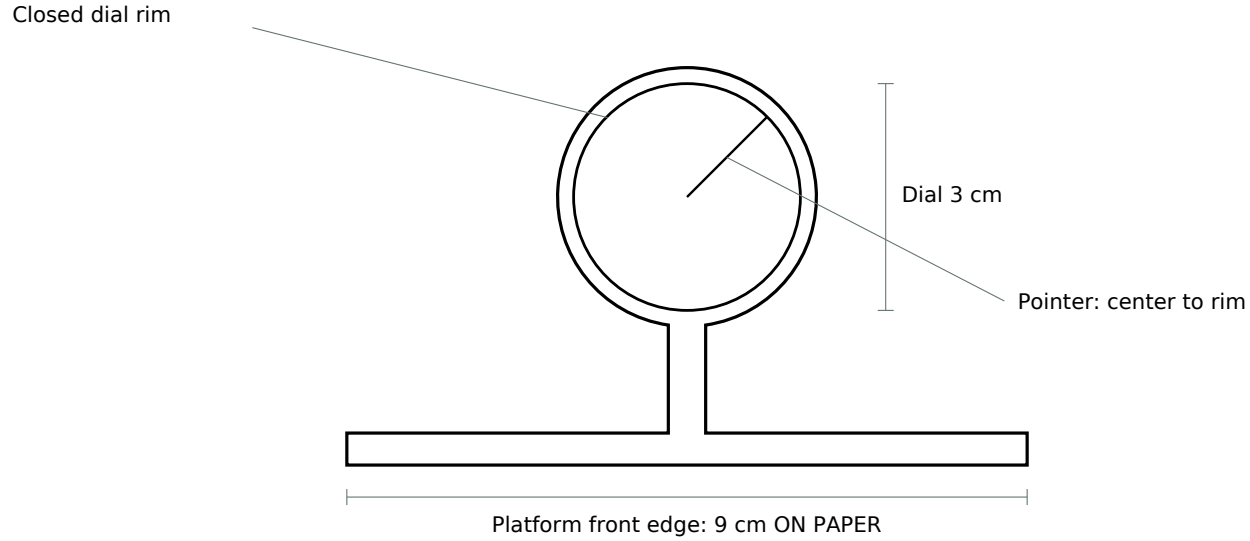
- Each visible contour is drawn continuously where possible, with minimal lifts between separate contours and no shading.
- The dial rim is a closed loop and the needle axis is present.
- The platform front edge is drawn as a single line with correct proportional length.
- No internal mechanics or dial markings are included.
- The blind-contour and slow-contour boxes are both completed and labeled.
- Valid alternative line styles and trace directions are accepted if each contour remains clear, joined where appropriate and unshaded.

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EXERCISE 1 / WORKED ANSWER

A scale has a dial rim diameter of 6 cm and a platform front edge of 18 cm. Using a scale of 1 cm to 0.5 cm, calculate the drawn dial diameter and platform edge length. Describe the contour line you would draw.

Object 18 cm platform / 6 cm dial / object-to-paper factor 0.5



Print at 100% for the stated PAPER lengths. Gray lines are measurement/label guides.

Drawn dial diameter = 3 cm; drawn platform edge = 9 cm. The contour line starts at the platform's left front corner, runs 9 cm to the right, then traces the dial rim as a 3 cm circle above the platform, connected by two vertical support lines.

Why: Multiply each object measurement by the scale factor 0.5. The contour line follows visible edges only, with no shading.

Check: Measure your drawn dial diameter and platform edge with a ruler; the target values are 3 cm and 9 cm. A 0.2 cm difference is a chosen classroom checking allowance here, not a manufacturing or printer specification.

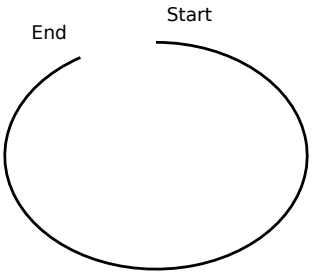
All device dimensions are hypothetical drawing examples. The labelled paper lengths in quantitative answer diagrams are printed at those paper sizes at 100%; do not halve them a second time. The rim-detail and trace-sequence panels are illustrative, not physical rulers.

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EXERCISE 2 / WORKED ANSWER

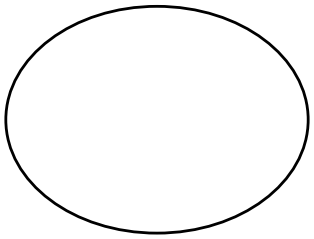
In a blind-contour drawing of a scale, you draw the dial rim as an oval that does not close. State one likely cause and one correction.

Given: open rim



Stop leaves a visible gap

Corrected: joined rim



Start and end meet; no gap

Rim detail only. The question gives no numerical rim size; these ovals are illustrative.

Likely cause: you lifted your pen or changed direction before completing the loop. Correction: restart at the same starting point and move clockwise without lifting the pen until the loop closes.

Why: Blind contour requires continuous observation; breaks in the line usually come from losing the edge or hesitating.

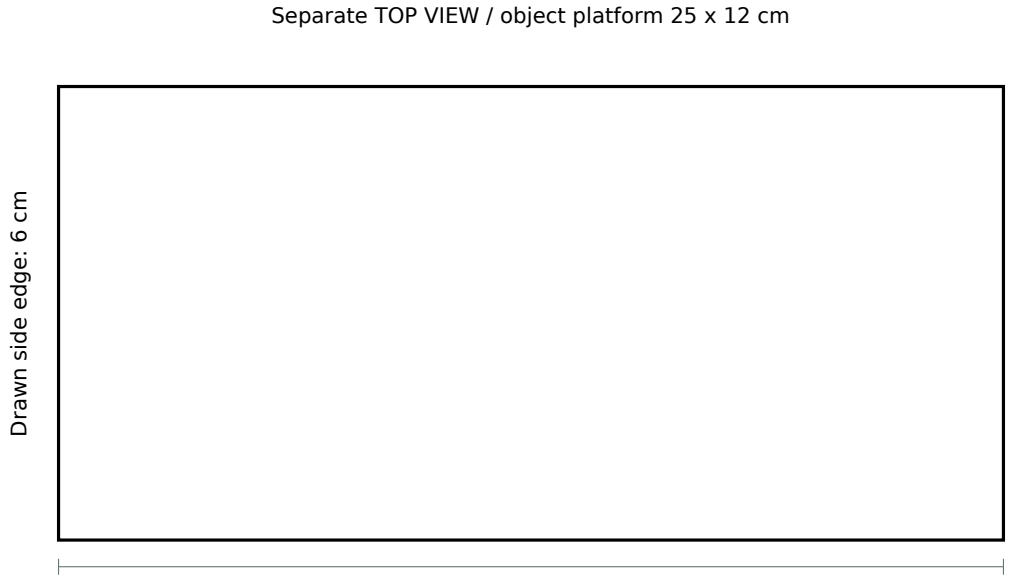
Check: Compare the start and end points of the rim. They should visibly meet with no open gap. If a gap remains, continue from the unfinished endpoint or redraw the loop until it closes.

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EXERCISE 3 / WORKED ANSWER

A scale platform is 25 cm wide and 12 cm deep. You draw the front edge as 12.5 cm and the side edge as 6 cm. What scale did you use? Show your arithmetic.



12.5 / 25 = 6 / 12 = 0.5; paper : object = 1 : 2. Print at 100%.

Scale is 1 cm on paper to 2 cm on the object (0.5). 25 × 0.5 = 12.5 cm; 12 × 0.5 = 6 cm.

Why: Divide the drawn length by the object length: 12.5 ÷ 25 = 0.5 and 6 ÷ 12 = 0.5. Both give the same factor.

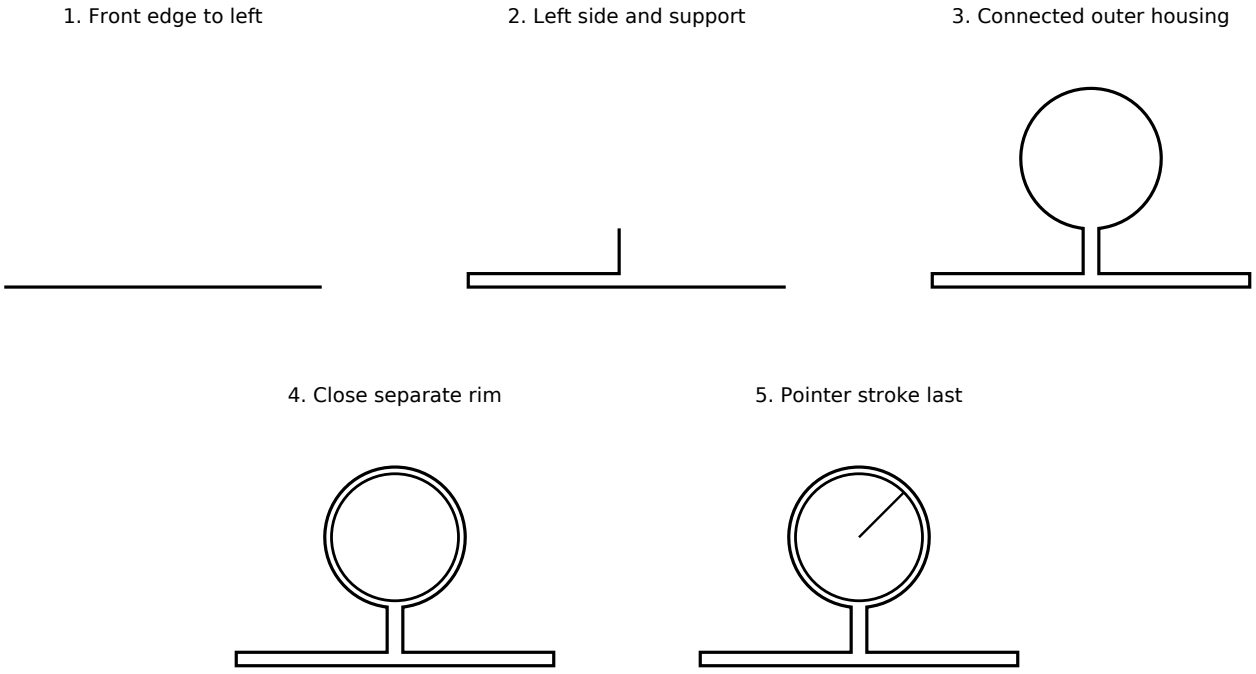
Check: Re-measure both drawn edges and divide by the object dimensions; both ratios should equal 0.5.

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EXERCISE 4 / WORKED ANSWER

You are drawing a scale with a dial rim and a platform. List the order of contour lines you would draw to keep the line continuous, and explain why the needle axis is drawn last.



Illustrative trace sequence, not physical rulers. Minimal lifts separate the outer contour, rim and pointer.

One valid order is platform front edge, left side edge, connected support and housing contours, dial rim loop, then pointer line. Start at the platform right front corner so the first edge finishes at the left side. Make a minimal pen lift for a separate closed rim if needed. Draw the pointer last as its own stroke so it does not interrupt the outer contour. Its endpoint may meet the rim; it is not necessarily disconnected from it.

Why: Continuous contour prioritizes connected visible edges, with minimal lifts for separate contours. Adding the pointer after those edges keeps the main observation route clear. A separate pen stroke can still touch the rim at its endpoint.

Check: Trace the connected outer-contour segments with a finger, then check that the dial rim closes. Confirm that the pointer was added as a separate last stroke from center to rim, without extending beyond the rim or adding an arbitrary connector across empty space.

All device dimensions are hypothetical drawing examples. The labelled paper lengths in quantitative answer diagrams are printed at those paper sizes at 100%; do not halve them a second time. The rim-detail and trace-sequence panels are illustrative, not physical rulers.