Draw Farming Hand Tools: Hoe, Rake and Spade Shape Breakdown

Original tasks 1, 2 / complete keys

Task 1

Draw a rake with a handle 15 cm long and a crossbar 5 cm wide. The rake has five teeth. State the handle-to-crossbar ratio and give one check method.

Answer: A vertical handle rectangle 15 cm long, a horizontal crossbar rectangle 5 cm wide at the lower end, and five evenly spaced teeth hanging from the crossbar. The ratio is 15 divided by 5, which equals 3, so the ratio is 3:1.

Reason: The handle is the long narrow rectangle. The crossbar is the wider rectangle at the bottom. Five teeth are short narrow rectangles spaced equally along the crossbar. Dividing handle length by crossbar width gives the ratio.

Check: Measure the handle and crossbar with a ruler. Confirm the handle is 15 cm and the crossbar is 5 cm. Count five teeth and check that the gaps between teeth are equal by marking ticks before drawing.

Task 2

Draw a spade with a handle 10 cm long and a blade 4 cm wide at its widest point. The blade tapers to a rounded tip. State the ratio and describe how to check that the blade is centered.

Answer: A vertical handle rectangle 10 cm long, a blade 4 cm wide at the top that tapers to a rounded tip, and a short socket joint. The ratio is 10 divided by 4, which equals 2.5, so the ratio is 2.5:1.

Reason: The handle is a narrow rectangle. The blade is a shield-like shape wider than the handle. Centering means the blade's midpoint aligns with the handle's center line.

Check: Draw a center line through the handle and extend it into the blade area. Measure from the center line to the left blade edge and to the right blade edge at the widest point. The two distances should be equal, for example 2 cm and 2 cm.

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Original tasks 3, 4 / complete keys

Task 3

A hoe drawing has a handle 9 cm long and a blade 3 cm wide. A second hoe drawing has a handle 12 cm long and a blade 4 cm wide. Are the ratios the same? Show the arithmetic.

Answer: Yes, both ratios are 3:1. First hoe: 9 divided by 3 equals 3. Second hoe: 12 divided by 4 equals 3.

Reason: The ratio compares handle length to blade width. Dividing each pair gives the same result, so the two drawings share a consistent proportion even though the sizes differ.

Check: Write both divisions on paper: 9 ÷ 3 = 3 and 12 ÷ 4 = 3. If both answers are 3, the ratios match. If one answer is different, measure again or adjust one drawing.

Task 4

Draw a hoe, a rake and a spade inside three separate blank outline boxes, each 8 cm by 12 cm. Use these planned ratios: hoe 4:1, rake 3:1, spade 2.5:1. After drawing, measure one tool and state whether its ratio is within 0.5 of the planned value.

Answer: Three boxed drawings, each with a handle, a head and a joint. Example measurement: the hoe handle is 8 cm and the blade is 2 cm, so 8 divided by 2 equals 4, which matches the planned 4:1 exactly. The difference is 0, which is within 0.5.

Reason: Each box limits the drawing area. The planned ratio guides the handle and head sizes. Measuring one tool and comparing the measured ratio to the planned ratio shows whether the drawing is consistent.

Check: Measure the chosen tool's handle and head with a ruler. Divide handle length by head width. Subtract the planned ratio from the measured ratio and take the positive difference. If the difference is 0.5 or less, the drawing passes the check.

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Source rubric / reflection

- [ ] The hoe, rake and spade are each recognizable by their head shape.
- [ ] Each handle is drawn as a narrow rectangle or a deliberate curve.
- [ ] Each head connects to the handle through a visible joint.
- [ ] The handle-to-head ratio is stated and can be checked by measurement.
- [ ] The rake teeth are evenly spaced and similar in length, or a difference is deliberate.
- [ ] The spade blade is centered under the handle unless an offset is deliberate.
- [ ] The working edge of each tool is clear and not hidden.
- [ ] The blank outline box redraw stays inside the box or the overflow is noted.
- [ ] Valid alternatives are accepted: a curved handle, a rounded spade tip, or a hoe blade angled left or right, as long as the choice is consistent and checkable.

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