Shoelace Drawing: Eyelets, Crossings, Loops and Knots

Original tasks 1, 2 / complete keys

Task 1

Draw a two-column eyelet grid with three rows on each side. Label the left eyelets L1-L3 and right eyelets R1-R3. Draw the lace path L1, R2, L3, R1, L2, R3. Mark every interior crossing and state which strand is on top at each crossing.

Answer: The path segments are L1-R2, R2-L3, L3-R1, R1-L2, and L2-R3. It has four crossings: (1) L1-R2 crosses L3-R1 at (x=2/3, y=5/3); keep L1-R2 on top. (2) L1-R2 crosses R1-L2 at (x=1/2, y=3/2); keep L1-R2 on top. (3) R2-L3 crosses L2-R3 at (x=1/2, y=5/2); keep R2-L3 on top. (4) L3-R1 crosses L2-R3 at (x=1/3, y=7/3); keep L3-R1 on top. At each listed point, leave a short gap in the lower segment. Coordinates use x=0 at the left column, x=1 at the right, and row number y.

Reason: A crossing occurs where two non-adjacent segment interiors intersect. Comparing the linear x-position of each segment across overlapping row ranges yields the four listed intersections; the top choices are stated separately at every point, so no crossing is left to guess.

Check: Follow all five segments in order, then verify exactly four interior crossings at the listed coordinates and segment pairs. At each point, confirm the named top segment is continuous and the other has a short gap. Check that no two segments sharing only an eyelet endpoint are counted as an additional crossing.

Task 2

Draw a bow loop at the top of a two-column eyelet grid. The lace ends leave L1 and R1. Draw two rounded loops and a centre knot. Use the over-under convention at the knot and label the top strand.

Answer: A correct drawing shows two lace ends leaving L1 and R1, each forming an open rounded loop that returns to the centre. The centre knot has one continuous strand and one broken lower strand. The top strand is labelled.

Reason: The loops must connect back to the lace ends, and the knot must sit where the loop bases meet. The over-under break shows which strand crosses on top.

Check: Trace each loop from the centre knot back to L1 or R1. Confirm the knot touches both loop bases and that the labelled top strand is continuous at the knot.

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Original tasks 3, 4 / complete keys

Task 3

On a blank eyelet panel with two columns of four eyelets, draw a complete shoelace construction: criss-cross path, two bow loops and a centre knot. Use any consistent numbered sequence and state the sequence you used.

Answer: A correct drawing shows a complete lace path through the eyelets, two open loops and a centre knot. The stated sequence matches the drawn segments, and every crossing uses one continuous top strand and one broken lower strand.

Reason: The blank panel tests independent repetition. A consistent sequence and over-under convention make the construction checkable even without a printed guide.

Check: Follow the stated sequence from eyelet to eyelet and confirm each segment is drawn. Check that every crossing has one continuous and one broken strand, and that both loops connect to lace ends.

Task 4

Draw a knot-step row showing three stages: lace ends crossing, first loop formed, and finished knot with two loops. Use the over-under convention at each stage and explain one check you used.

Answer: A correct row shows three separate drawings. Stage one shows the two lace ends crossing with one strand on top. Stage two shows the first rounded loop returning to the centre. Stage three shows two loops and a centre knot with a clear over-under break. The explanation names a check such as tracing each loop back to a lace end.

Reason: Separating the stages makes the construction order visible. The over-under convention stays consistent across all three stages.

Check: Compare the three stages in order: crossing, first loop, finished knot. In each stage, confirm that the top strand is continuous and the lower strand is broken where they meet.

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Source rubric / reflection

- [ ] All lace segments start and end at labelled eyelet centres.
- [ ] The numbered crossing sequence is followed without skipping an eyelet.
- [ ] Each crossing shows one continuous top strand and one broken lower strand.
- [ ] The bow loops are open and rounded and connect back to lace ends.
- [ ] The centre knot touches the loop bases and uses the same over-under convention.
- [ ] The drawing uses a consistent convention; valid alternative over-under orders are accepted if they are clear and consistent.

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