Draw Leg Exercise Poses with Joint Angles: A Guided Practice

Original tasks 1, 2 / complete keys

Task 1

Draw a standing knee-curl start and end pose. Start: knee angle 170 degrees, hip angle 90 degrees. End: knee angle 90 degrees, hip angle 90 degrees. Add one motion arrow from start ankle to end ankle.

Answer: Draw a vertical torso line and a horizontal thigh at the hip. Keep the hip angle at 90 degrees. At the knee, draw the start shin so its angle with the ray back to the hip is 170 degrees; for the end pose, draw the shin downward so that angle is 90 degrees. One curved arrow runs from the start ankle to the end ankle behind the knee.

Reason: The hip angle stays at 90 degrees, so the thigh line does not move. Only the knee angle changes from 170 to 90 degrees, which bends the shin backward. The motion arrow follows the shin arc.

Check: Measure the start knee angle with a straight edge; it should be close to 170 degrees. Measure the end knee angle with a paper corner; it should be close to 90 degrees. Confirm the hip angle label is 90 degrees and the arrow does not cross the knee circle.

Task 2

Draw a split-squat bottom pose. Front leg: knee angle 90 degrees, hip angle 90 degrees. Back leg: knee angle 120 degrees, hip angle 120 degrees. Add one motion arrow showing the front knee moving forward.

Answer: Draw one vertical torso line and mark a separate hip circle for each leg on the torso line. From the front-leg hip circle, draw the front thigh horizontally forward, then the front shin straight down so the front knee angle is 90 degrees; set the front hip angle to 90 degrees between the torso line and the horizontal front thigh. From the back-leg hip circle, draw the back thigh down and backward so it makes a 120-degree interior angle with the vertical torso line (that is, 30 degrees below the backward horizontal), then draw the back shin vertically down from the knee so the back knee angle is 120 degrees. Add a short arrow pointing forward from the front knee circle. Label each joint angle in degrees.

Reason: Each leg has its own hip circle on the torso line, so the two legs can point in different directions. The front leg is more bent at the knee and hip, while the back leg is less bent. The motion arrow shows the front knee traveling forward.

Check: Measure each labeled angle against its joint lines. Confirm the front knee angle is close to 90 degrees and the back knee angle is close to 120 degrees. Confirm the front hip angle is close to 90 degrees (front thigh horizontal) and the back hip angle is close to 120 degrees (back thigh 120 degrees from the vertical torso line, i.e. 30 degrees below the backward horizontal). Check that the arrow starts at the front knee circle and points forward without crossing the shin line.

Draw Leg Exercise Poses with Joint Angles: A Guided Practice

Original tasks 3 / complete keys

Task 3

Draw a lying leg-raise start and end pose. Start: hip angle 180 degrees, knee angle 180 degrees. End: hip angle 90 degrees, knee angle 180 degrees. Add one motion arrow from start ankle to end ankle.

Answer: Draw a horizontal torso line on the ground. Place the hip circle at the right end of a horizontal torso line that extends left toward the shoulders. For the start, draw the thigh ray from the hip to the right, opposite the torso ray, so the hip angle is 180 degrees as a straight-line continuation, and draw the shin in line with the thigh so the knee angle is 180 degrees. For the end, keep the knee angle at 180 degrees and rotate the straight leg up until the hip angle between the torso line and the thigh line is 90 degrees. Add a curved arrow from the start ankle to the raised ankle. Label the start hip angle as 180 degrees, the end hip angle as 90 degrees, and the knee angle as 180 degrees in both positions.

Reason: The knee does not bend, so the knee angle stays at 180 degrees. The hip angle changes from a straight-line 180 degrees to 90 degrees, lifting the straight leg. The motion arrow follows the arc of the ankle.

Check: Use a straight edge to confirm the knee line is straight in both positions and that the start leg continues the torso line. Use a paper corner to confirm the end hip angle is close to 90 degrees. Confirm the arrow starts at the ground-level ankle and ends at the raised ankle.

Draw Leg Exercise Poses with Joint Angles: A Guided Practice

Original tasks 4 / complete keys

Task 4

Draw a step-up top pose. Support leg: knee angle 170 degrees, hip angle 90 degrees. Raised leg: knee angle 90 degrees, hip angle 90 degrees. Add one motion arrow showing the raised knee moving up.

Answer: Draw one vertical torso line and mark a separate hip circle for each leg on the torso line. From the support-leg hip circle, draw the support thigh horizontally backward and the support shin nearly in line with it, angled only slightly down, so the support knee angle is 170 degrees; set the support hip angle to 90 degrees between the torso line and the horizontal support thigh. From the raised-leg hip circle, draw the raised thigh horizontally forward, then the raised shin down so the raised knee angle is 90 degrees; set the raised hip angle to 90 degrees between the torso line and the horizontal raised thigh. Add a short upward arrow starting at the raised knee circle. Label each joint angle in degrees.

Reason: The support leg carries the body with a nearly straight knee. The raised leg is bent at the knee and hip to lift the foot. Because each leg starts from its own hip circle, the two thighs can point in different directions even though both hip angles are 90 degrees. The motion arrow shows the raised knee traveling upward.

Check: Measure the support knee angle with a straight edge; it should be close to 170 degrees, meaning the support shin is only slightly bent from the line of the support thigh. Measure the raised knee angle with a paper corner; it should be close to 90 degrees. Confirm both hip angle labels are 90 degrees (both thighs horizontal, one backward and one forward) and that each thigh is drawn from its own hip circle. Confirm the arrow points up from the raised knee circle.

Draw Leg Exercise Poses with Joint Angles: A Guided Practice

Source rubric / reflection

- [ ] Hip, knee, and ankle circles are present and in order.
- [ ] Each joint angle is labeled in degrees and matches the drawn lines within a reasonable drawing tolerance.
- [ ] At least one motion arrow shows the direction of movement without crossing a joint circle.
- [ ] The pose stays within the brief: leg exercise poses only, with no full-body figure.
- [ ] Alternative line styles or proportions are accepted if the angle labels and motion cues remain checkable.

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