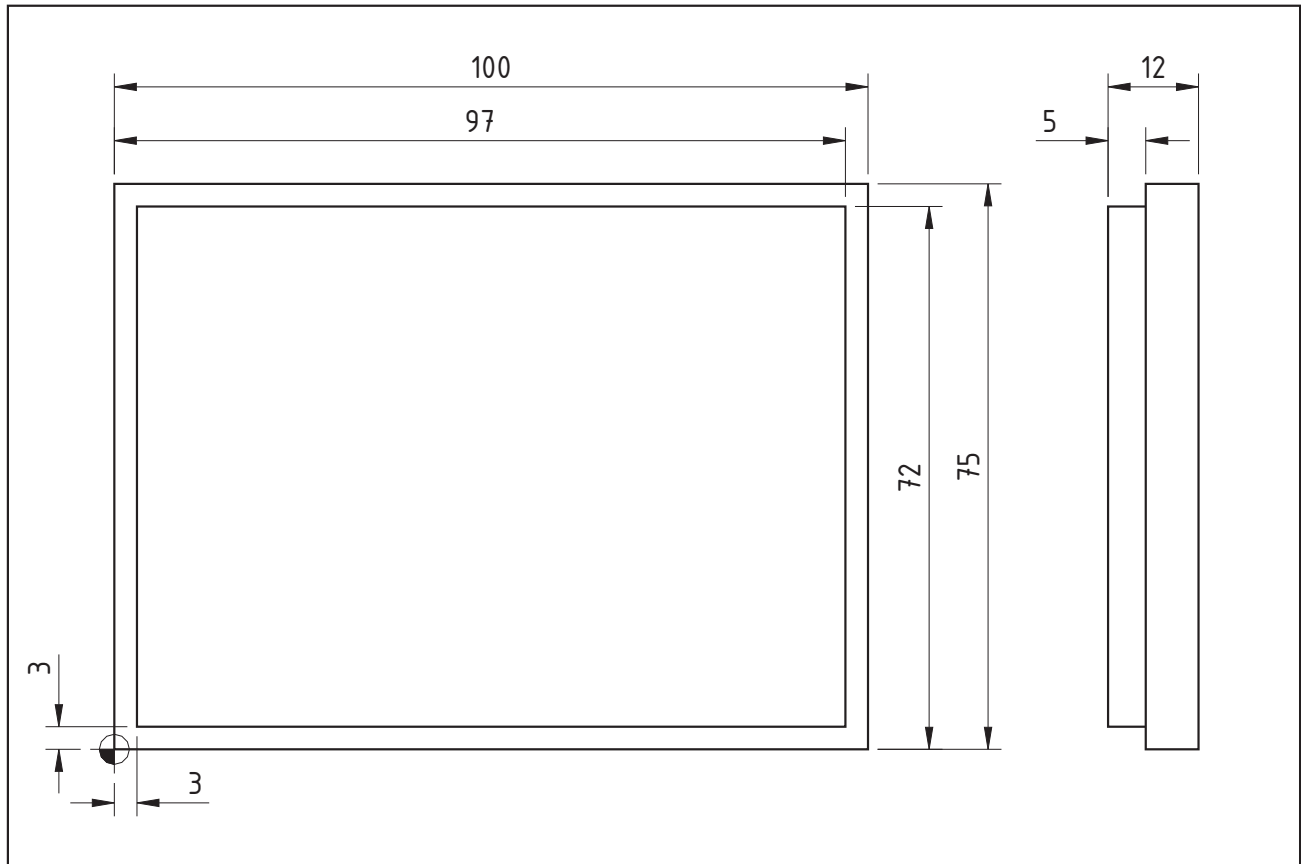
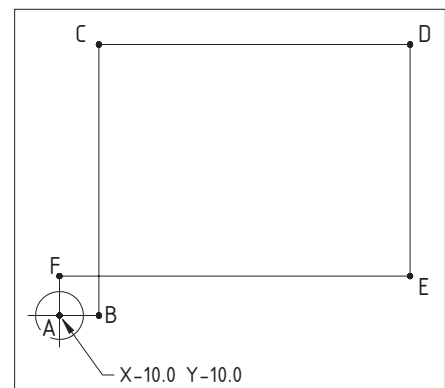


Strictly speaking, a toolpath programming for contours can use *four different methods*, not all correct. The key to success is handling the cutter radius properly. The CNC operator has to know how the contour has been programmed. In manual programming, the contour is usually programmed to the drawing dimensions, whereby in CAD/CAM software, it is often programmed to the center of the cutter. The following four projects illustrate the differences between various methods of toolpath programming, using the same simple drawing:



➊ To complete the four projects, follow these conditions:

1. Use $\varnothing 15$ mm end mill as T01
2. Use H01 for tool length offset
3. Use D51 for cutter radius offset, when required
4. Tool is mounted in the spindle
5. Spindle speed is 1200 r/min and feedrate is 200.0 mm/min
6. Follow the toolpath in the order of A-B-C-D-E-F-A as shown:



Each project is described on the next page. Follow the instructions and answer the three questions.

➡ Project 30-01A Program to drawing dimensions, without a cutter radius offset, and answer these questions:

1. What is the *D51* offset setting at the control? _____
2. Describe the advantages of using this toolpath method _____

3. Describe the disadvantages of using this toolpath method _____

➡ Project 30-01B Program to drawing dimensions, apply a cutter radius offset, and answer these questions:

1. What is the *D51* offset setting at the control? _____
2. Describe the advantages of using this toolpath method _____

3. Describe the disadvantages of using this toolpath method _____

➡ Project 30-01C Program to cutter center dimensions, without a cutter radius offset, and answer these questions:

1. What is the *D51* offset setting at the control? _____
2. Describe the advantages of using this toolpath method _____

3. Describe the disadvantages of using this toolpath method _____

➡ Project 30-01D Program to cutter center dimensions, apply a cutter radius offset, and answer these questions:

1. What is the *D51* offset setting at the control? _____
2. Describe the advantages of using this toolpath method _____

3. Describe the disadvantages of using this toolpath method _____
