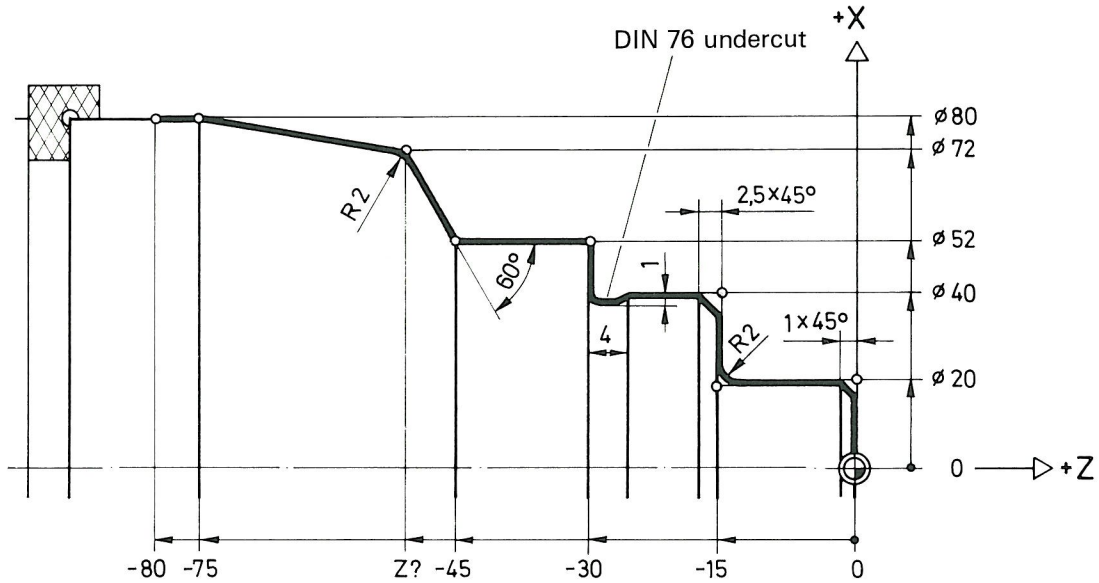


# Programming exercise 1



% 1								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G96							
N2								
N3	G82							
N4	G57							
N5	G818							
N6				L11				
N7								
N8								
N9								
N10								
N11				L11				
N12								
N13								M30

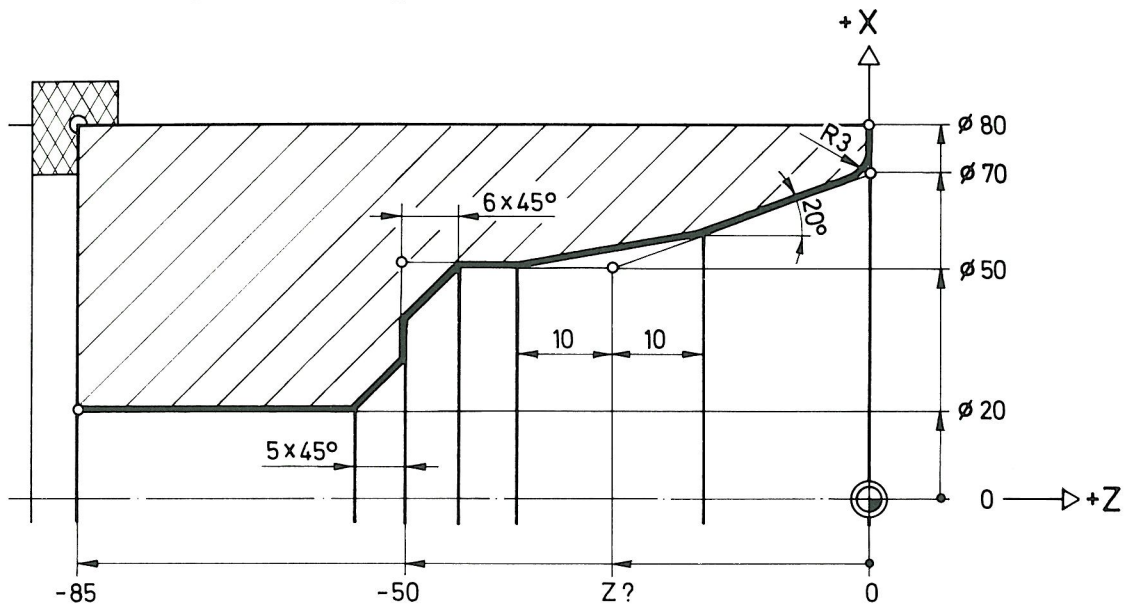
% 11								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G42 G1							
N3								
N4								
N5								
N6	G85							
N7								
N8								
N9								
N10								
N11								
N12	G40 G1							
N13								M30



# 6.2

## Programming exercise 2

Component is already turned to length



% 2							
N	G	X	Z	Auxiliary addresses	F	S	T
N1	G97						M3
N2							
N3							
N4							
N5	G96						M4
N6							
N7							
N8	G818						
N9							
N10							
N11							
N12	G96						
N13							
N14							
N15							
N16							M30

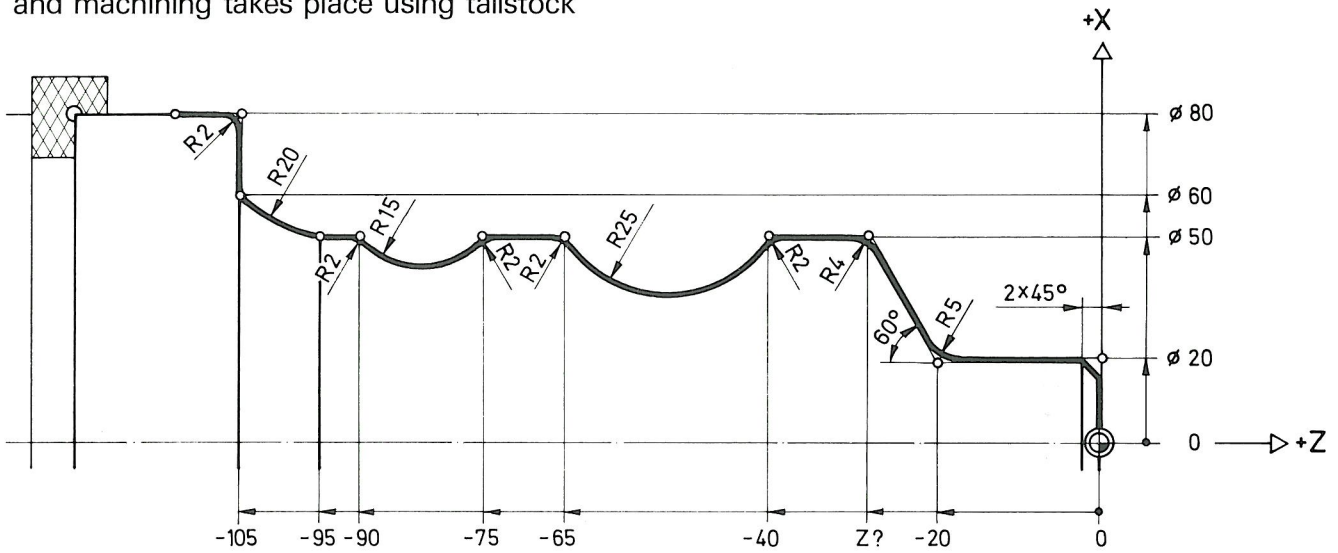
% 12							
N	G	X	Z	Auxiliary addresses	F	S	T
N1							
N2	G41						
N3							
N4							
N5							
N6							
N7							
N8	G40						
N9							M30



# 6.3

## Programming exercise 3

Component is already turned to length  
and machining takes place using tailstock



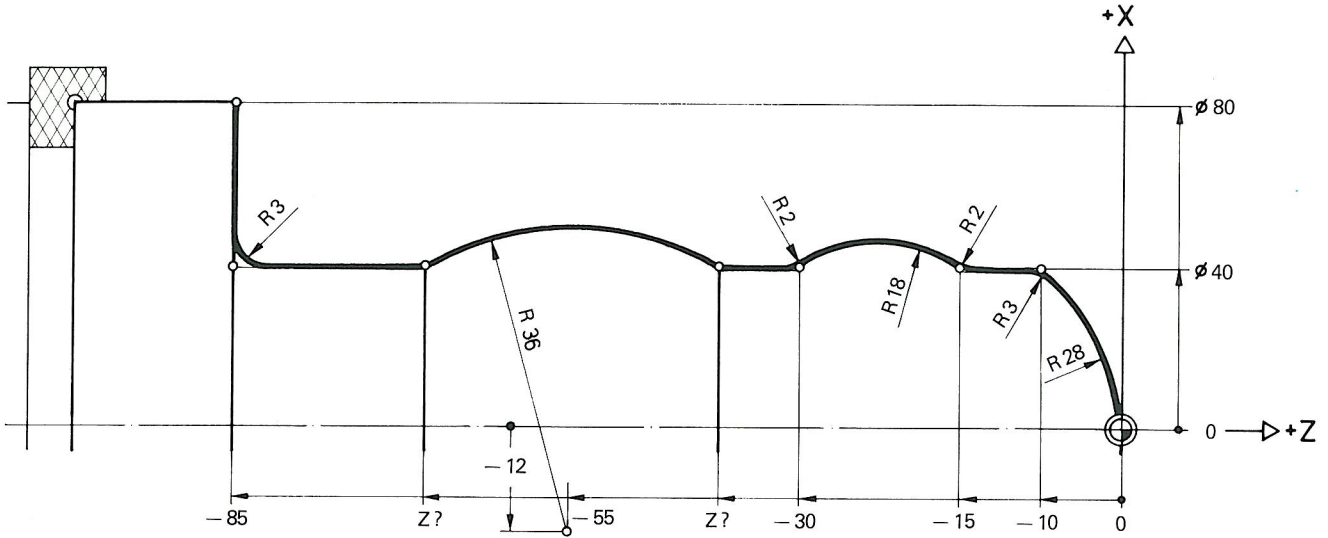
% 3								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G96						T1	
N2								
N3	G57							
N4	G819							
N5				L13				
N6								
N7								
N8	G96						T2	
N9								
N10				L13				
N11								
N12								M30

% 13								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G0							
N2	G42 G1							
N3								
N4								
N5								
N6								
N7	G2							
N8								
N9	G2							
N10								
N11	G2							
N12								
N13								
N14	G40 G1							
N15								M30



6.4

# Programming exercise 4



% 4								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G96							
N2								
N3								
N4	G819							
N5				L14				
N6								
N7								
N8	G96							
N9								
N10				L14				
N11								
N12								M30

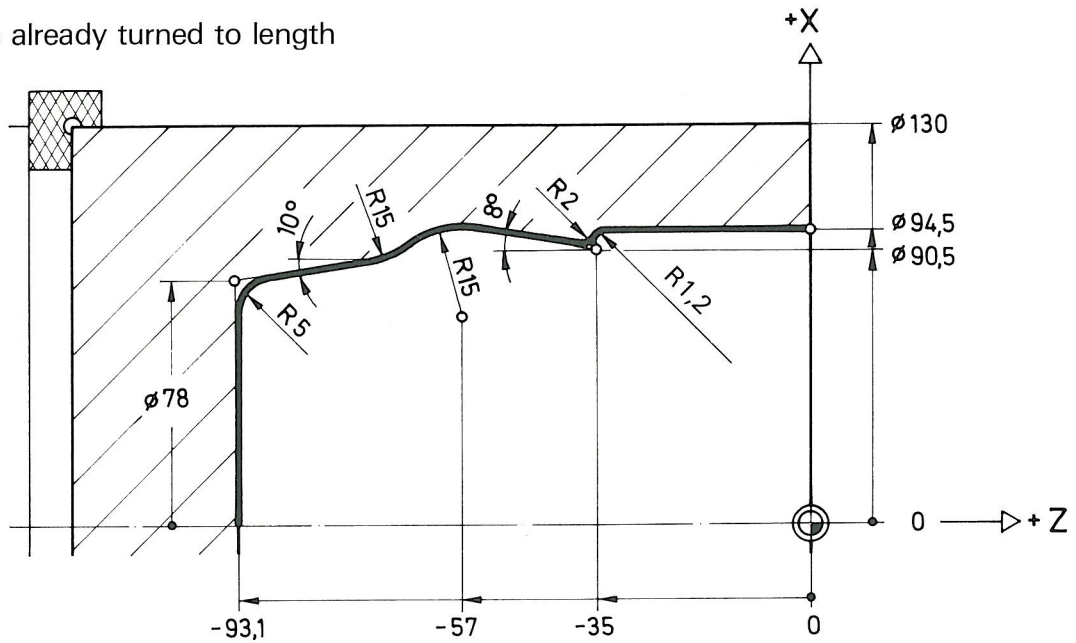
% 14								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G42							
N3	G3							
N4								
N5	G3							
N6								
N7	G13							
N8								
N9								
N10	G40							
N11								M30



# 6.5

## Programming exercise 5

Component is already turned to length



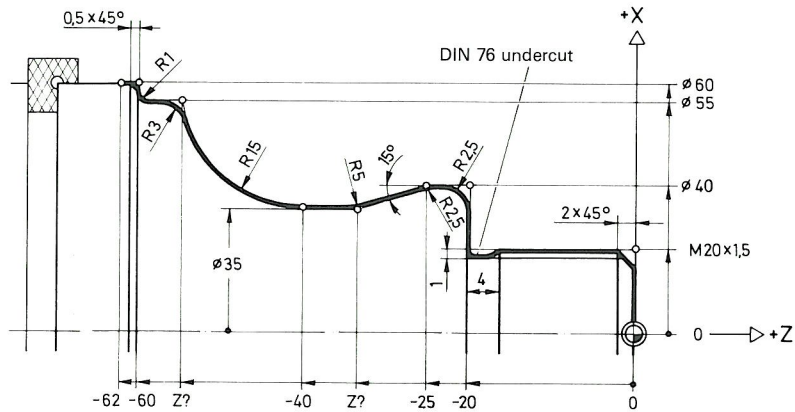
% 5		X	Z	Auxiliary addresses	F	S	T	M
N1	G97							M3
N2								
N3								
N4								
N5	G96							M4
N6								
N7								
N8	G819							
N9				L15				
N10								
N11								
N12	G96							
N13								
N14				L15				
N15								
N16								M30

% 15		X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G41							
N3								
N4								
N5								
N6	G13							
N7	G3							
N8	G1							
N9								
N10	G40							
N11								M30



# 6.6

## Programming exercise 6



% 6								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G96							
N2								
N3	G82							
N4								
N5	G96							
N6								
N7	G57							
N8	G819							
N9				L16				
N10								
N11								
N12	G96							
N13								
N14				L16				
N15								
N16	G97							M3
N17								
N18								
N19								
N20								M30

% 16								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G42							
N3								
N4								
N5								
N6								
N7								
N8								
N9	G2							
N10								
N11								
N12								
N13	G40							
N14								M30

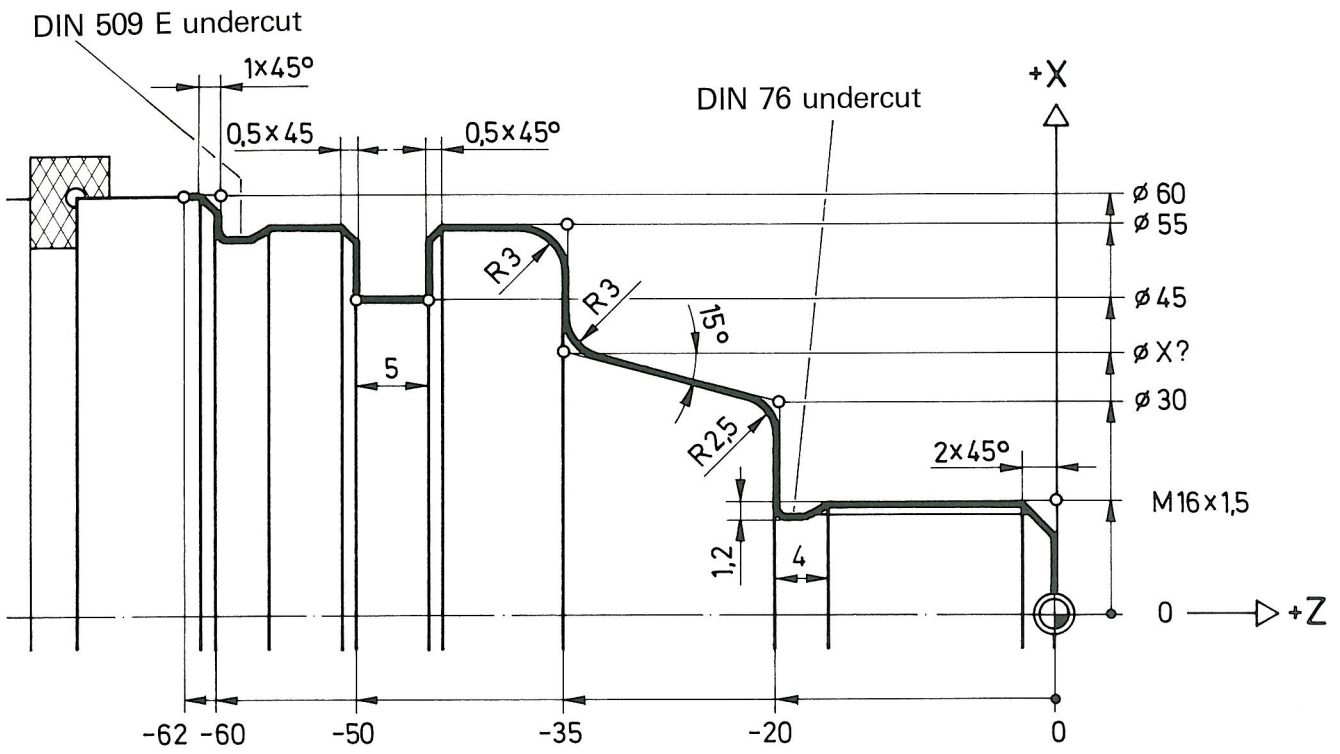


# Programming exercise 7

## Main programme

% 7		X	Z	Auxiliary addresses	F	S	T	M
N1	G96							
N2								
N3	G82							
N4	G57							
N5	G818							
N6				L17				
N7								
N8								
N9	G96							
N10								
N11				L17				
N12								
N13	G97							
N14								
N15								
N16								
N17	G96							
N18								
N19	G86							
N20								
N21								M30





**Sub-programme**

% 17		X	Z	Auxiliary addresses	F	S	T	M
N	G							
N1								
N2	G42							
N3								
N4								
N5								
N6								
N7								
N8								
N9								
N10								
N11	G40							
N12								M30



# Programming exercise 8

## Main programme

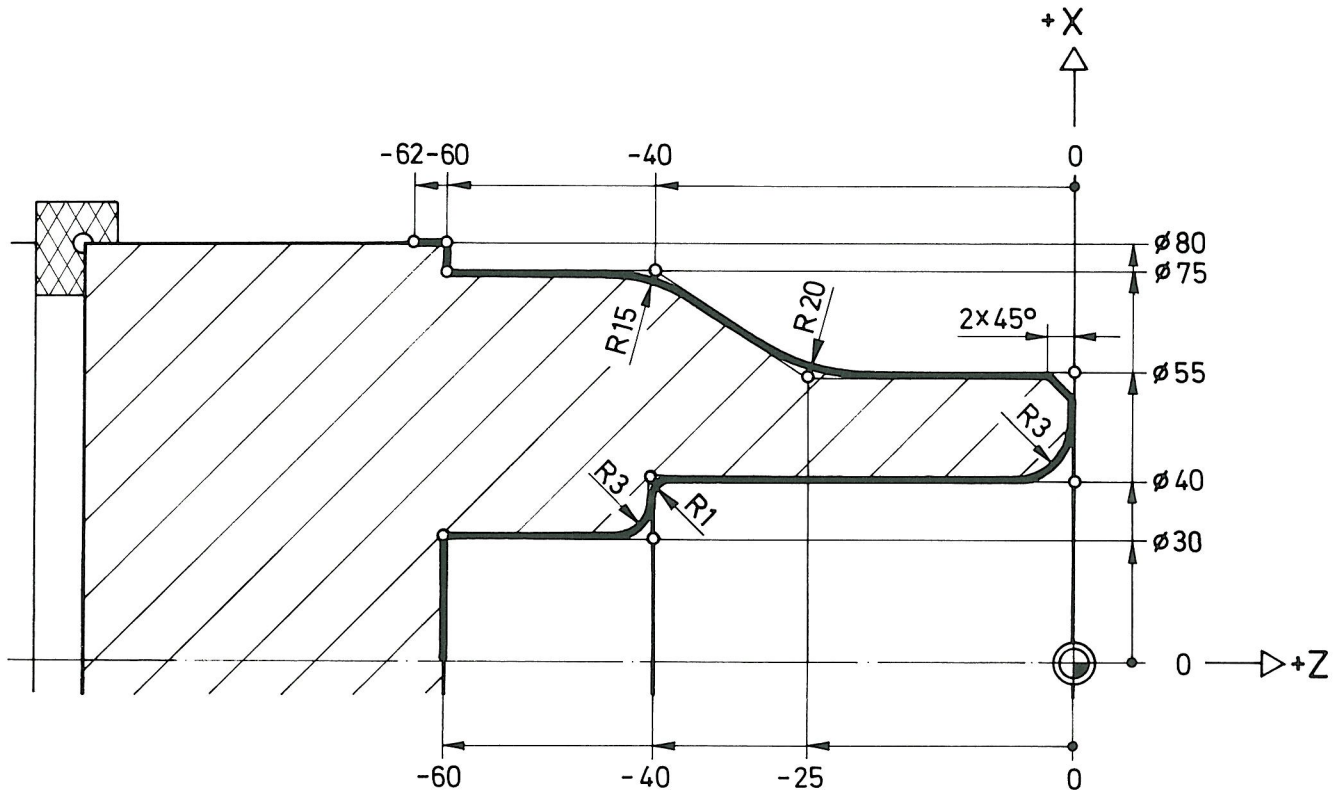
% 8		X	Z	Auxiliary addresses	F	S	T	M
N	G							
N1	G97						T5	
N2								
N3								
N4								
N5							T1	
N6								
N7	G57							
N8	G818							
N9				L18				
N10								
N11								
N12							T7	
N13								
N14	G57							
N15	G818							
N16				L108			T1	
N17								
N18								
N19							T9	
N20								
N21				L108				
N22								
N23							T2	
N24								
N25				L18				
N26								
N27								M30

## External contour

% 18		X	Z	Auxiliary addresses	F	S	T	M
N	G							
N1								
N2	G42							
N3								
N4								
N5								
N6								
N7								
N8								
N9	G40							
N10								M30



to 6.8



**Internal contour**

% 108								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G41							
N3								
N4								
N5								
N6								
N7								
N8	G40							
N9								M30



# Programming exercise 9

Component is already turned to length

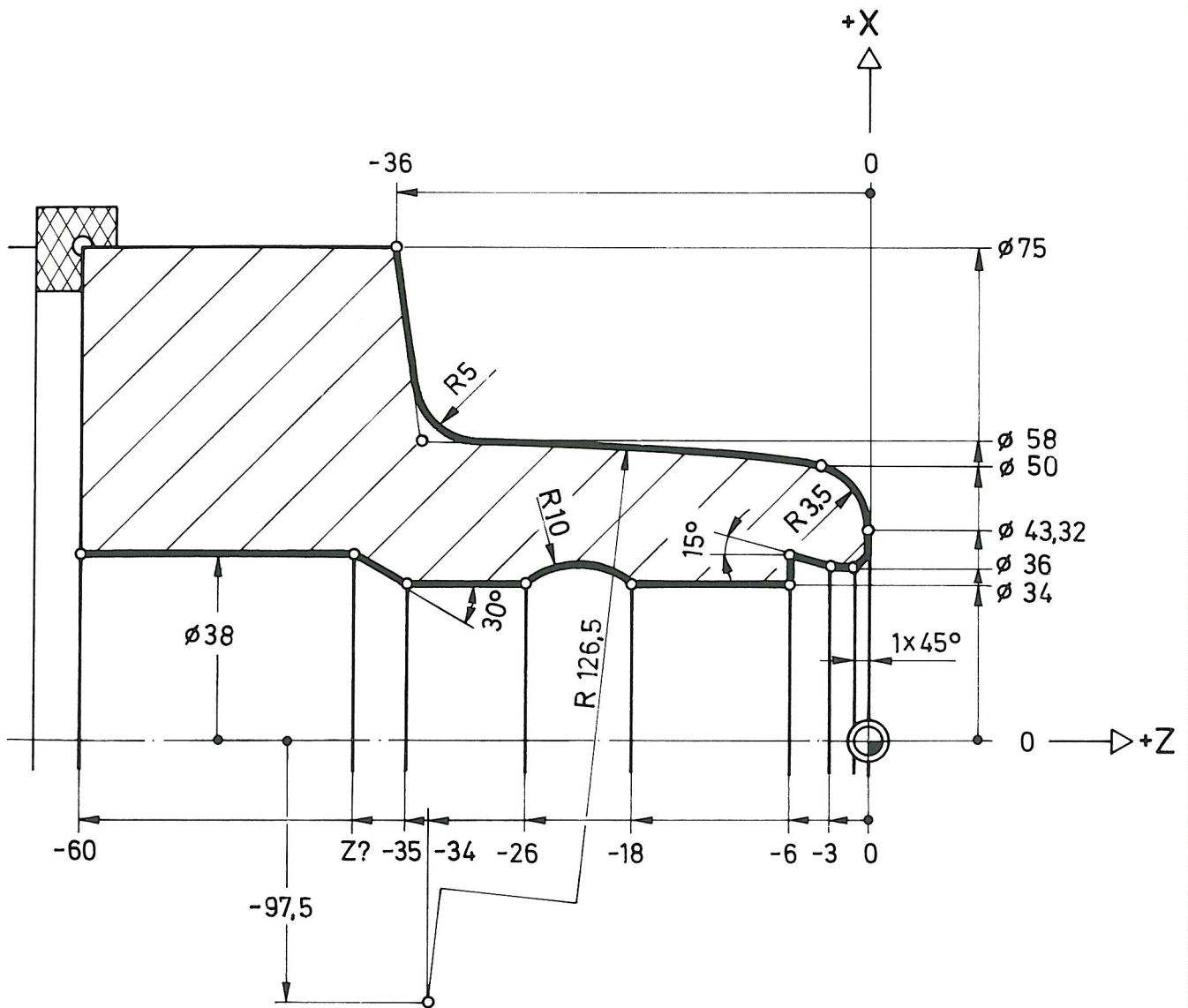
## Main programme

% 9								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G97							
N2								
N3								
N4								
N5								
N6								
N7								
N8	G818							
N9				L				
N10								
N11								
N12								
N13								
N14	G57							
N15	G819							
N16				L				
N17								
N18								
N19								
N20								
N21				L				
N22								
N23								
N24								
N25				L				
N26								
N27								M30

## External contour

% 19								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G42							
N3	G1	X43.32						
N4								
N5								
N6								
N7	G40							
N8								M30





Internal contour

% 109		Internal contour						
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G41							
N3								
N4								
N5								
N6								
N7								
N8								
N9								
N10								
N11								
N12	G40							
N13								M30



# Programming exercise 10

Notes:

1. The contour is to be produced in the main programme without tool nose radius compensation (TNRC) as with G87 and G88 TNRC is automatically activated.
2. The groove is to be programmed with TRNC.
3. The width of the grooving tool is to be 2.15 mm.

## Main programme

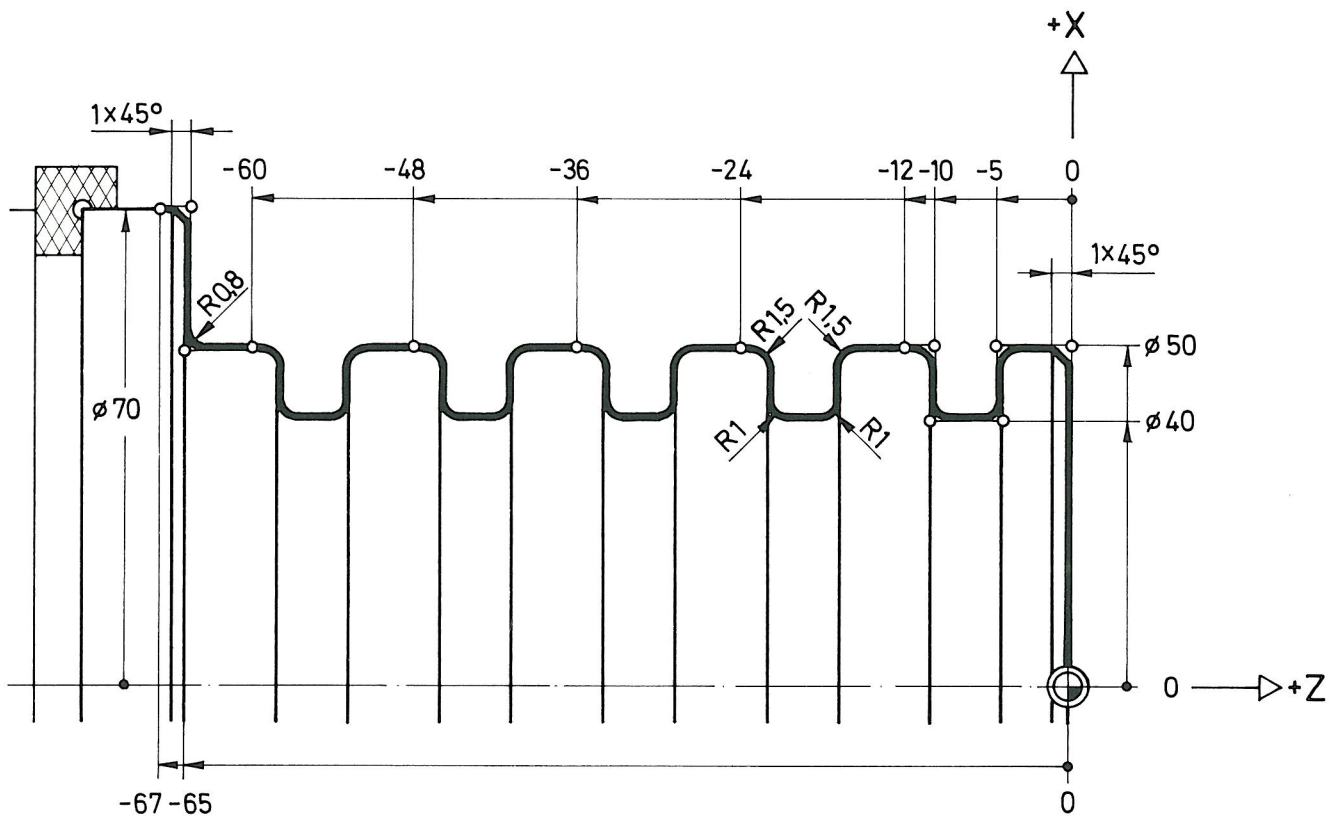
% 10		X	Z	Auxiliary addresses	F	S	T	M
N	G							
N1	G96							
N2								
N3	G82							
N4	G81							
N5								
N6	G96							
N7								
N8								
N9	G88							
N10	G87							
N11	G88							
N12								
N13								
N14				L110 Q5				
N15								
N16								M30

## Repeat of groove

% 110		X	Z	Auxiliary addresses	F	S	T	M
N	G							
N1	G96							
N2								
N3	G862							
N4				L1010				
N5								
N6	G56							
N7								M30



to 6.10



**Groove**

% 1010								
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G42							
N2								
N3								
N4								
N5								
N6								
N7								
N8	G40							
N9								



# Programming exercise 11

## with high degree of difficulty

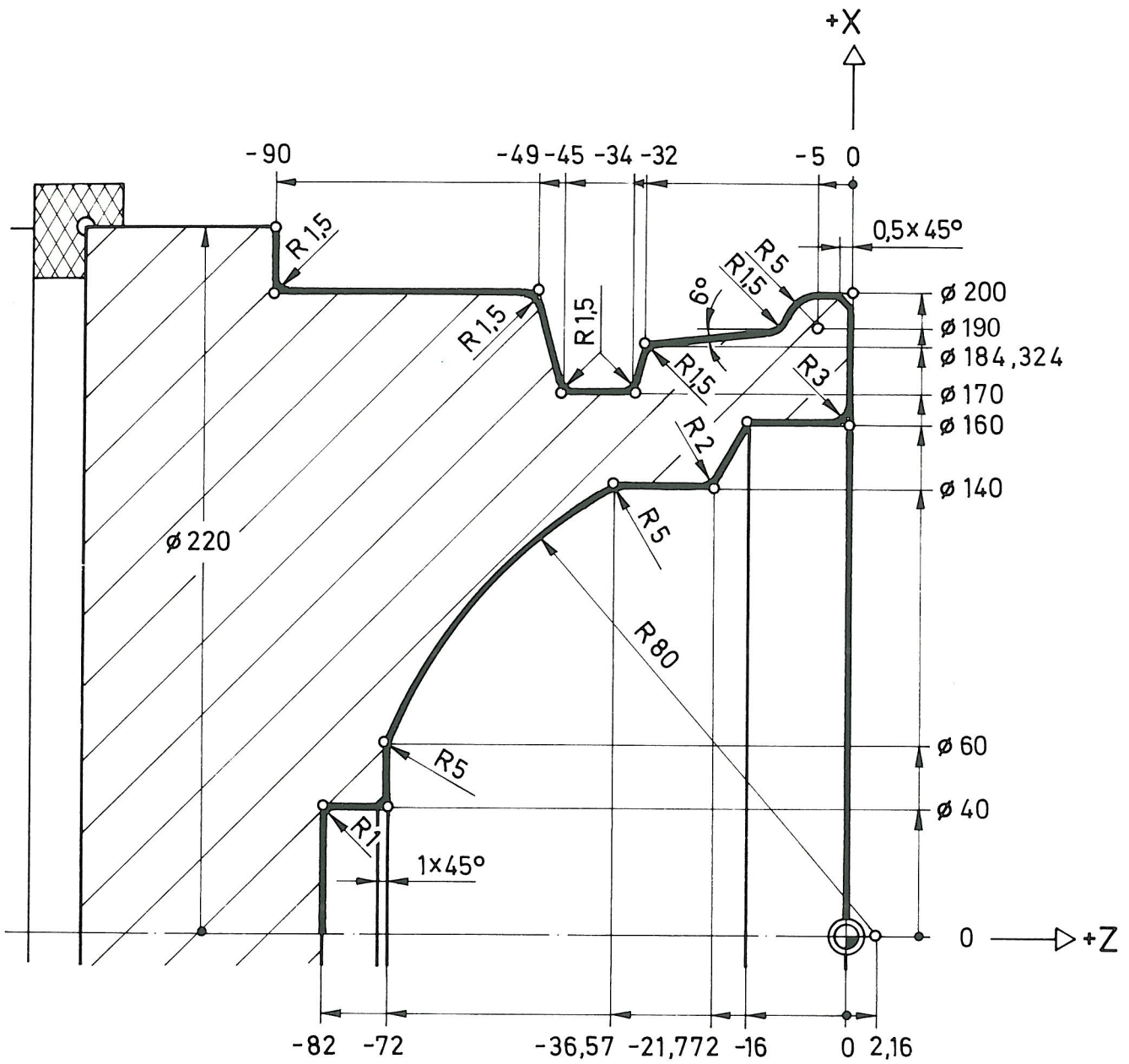
Main programme

% 11		Main programme						
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G97						T5	
N2								
N3								
N4								
N5	G96						T1	
N6								
N7	G82							
N8	G81							
N9								
N10	G96						T7	
N11								
N12	G57							
N13	G818							
N14								
N15								
N16								
N17	G96							
N18								
N19	G57	X0	Z0					
N20	G862							
N21								
N22								
N23	G14							
N24	G96							
N25	G0	X	Z					
N26	G88	X200	Z0	10.5				
N27								
N28	G0							
N29								
N30								
N31	G14							
N32	G96 G0	X	Z					
N33				L				
N34	G14			Q2				
N35								M30

Recess contour

% 111		Recess contour						
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1	G42							
N2								
N3								
N4								
N5								
N6								
N7								
N8								
N9	G40							
N10								M30





Internal contour

% 1011		Internal contour						
N	G	X	Z	Auxiliary addresses	F	S	T	M
N1								
N2	G41							
N3								
N4								
N5								
N6								
N7	G3							
N8								
N9								
N10								
N11	G40							
N12								M30



Notes: