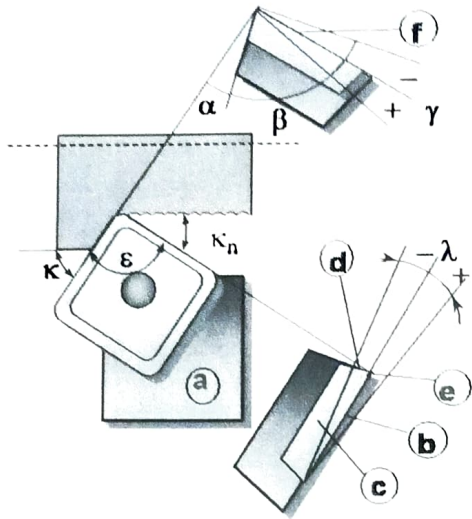


Answer shortly, use clear and readable fonts.



1. Name a) rake angle, b) clearance (or relief) angle, c) inclination angle. Explain the purpose and effect of each to the cutting (chip removal and result).



2. Fill in the following table concerning characteristics of cutting tool materials so, that 1 = largest, 3 = smallest and 2 = in between.

Mater./Char.	Hardness	Toughness	Heat resistance	Density	Modulus of elasticity
Tungsten carbide (WC)	✓	✓		✓	
High speed steel (HSS)					
Oxide, AlO_2					

3. Which are the purposes of cutting fluids? 1) _____, 2) _____, 3) _____, 4) _____.

4. Fill in the following table concerning suitability of the materials and thicknesses for cutting with the methods/machines so, that 1 = good, 2 = possible and 3 = not possible:

	Construction steel 1 mm	Construction steel 30 mm	Aluminium 1 mm	Aluminium 20 mm	Stainless steel 1 mm	Stainless steel 9 mm
Plasma cutting						
Turret punch press						
Laser cutting						

Water jet cutting						
Flame cutting						

5/ Describe shortly (tool and method, product or resulting feature):

- Broaching
- Boring
- Whirling
- Hobbing
- Reaming