For a 8 tooth / .5” between the teeth distance / 20 deg gear here are the dimensions to draw it.

Note:
CIRCULAR PITCH = DISTANCE BETWEEN TEETH
DIAMETRICAL PITCH= 3.1416 / CP= 3.1416/.5= 6.283”

DIAM PITCH	# OF TEETH	PRESSURE ANGLE	OUTSIDE DIA	ADDEN DUM	ADDEN DUM DIA	DEDEN DUM	DEDEN DUM DIA	WHOLE DEPTH	WHOLE DEPTH DIA	CIRCULAR PITCH	TOOTH THK	PITCH DIA	BASE CIRCLE RAD	BASE CIRCLE DIA	TOOTH PROFILE RAD
6.283	8	20.00	1.5916	0.1592	1.2733	0.1910	1.2096	0.3502	0.8913	0.5001	0.2400	1.2733	0.5982	1.1965	0.2178
20	14	20.00	0.8000	0.0500	0.7000	0.0600	0.6800	0.1100	0.5800	0.1571	0.0754	0.7000	0.3289	0.6578	0.1197
20	17	20.00	0.9500	0.0500	0.8500	0.0600	0.8300	0.1100	0.7300	0.1571	0.0754	0.8500	0.3994	0.7987	0.1454
20	21	20.00	1.1500	0.0500	1.0500	0.0600	1.0300	0.1100	0.9300	0.1571	0.0754	1.0500	0.4933	0.9867	0.1796

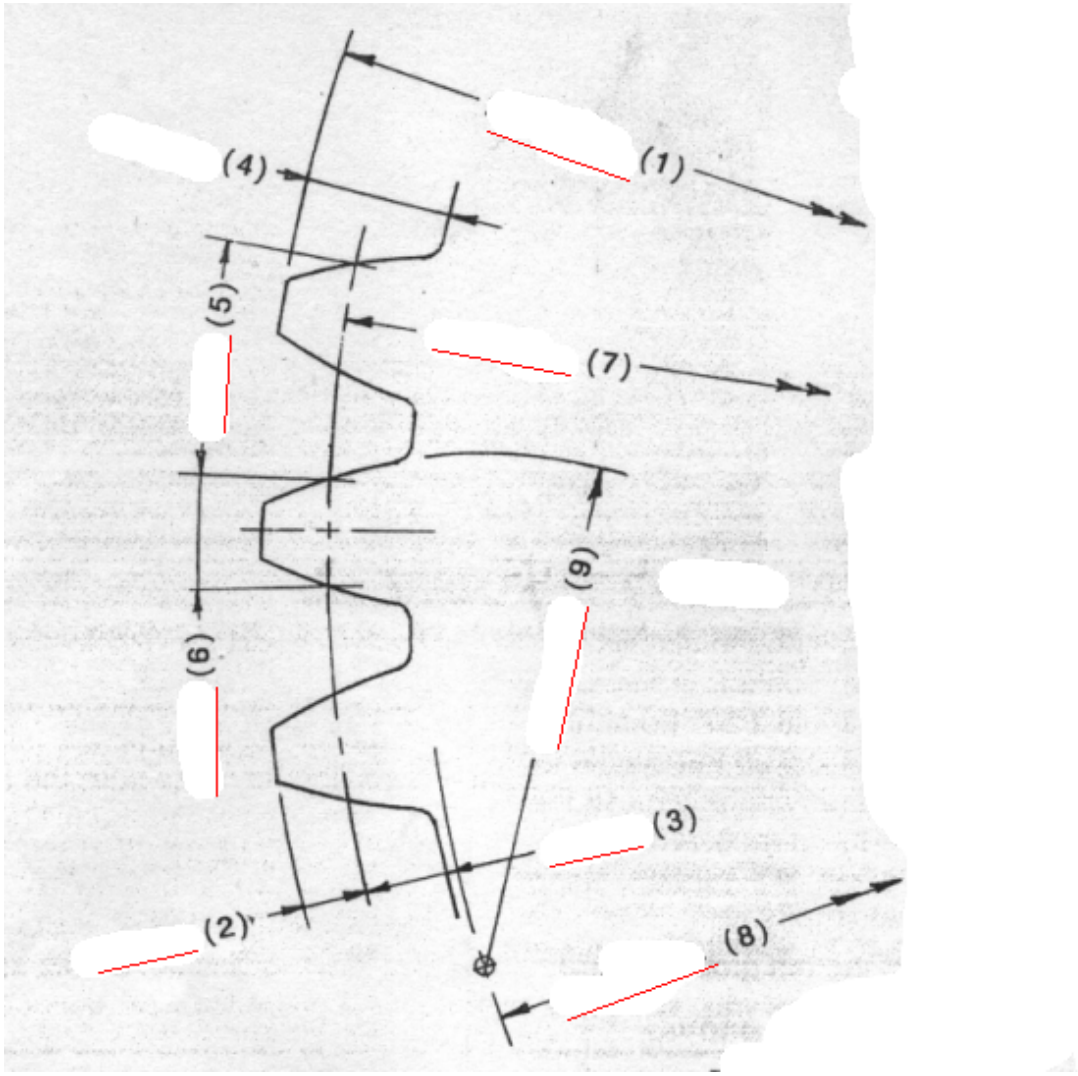
The above table calculated what dimensions you need to draw a tooth and here are the formulas used.

TABLE OF GEAR AND PINION VALUES

CRITERIA: Diametral Pitch--(P); 20° Pressure Angle--(ϕ)

	To Find:	Formula:
1.	Outside Diameter	OD = (N + 2) / P
2.	Addendum	A = 1.0 / P
3.	Dedendum	D = 1.200 / P
4.	Whole Depth	W = 2.200 / P
5.	Circular Pitch	CP = Π / P
6.	Tooth Thickness	T = 48% CP
7.	Pitch Diameter	PD = N / P
8.	Base Circle Radius	RB = (PD cos ϕ) / 2
9.	Tooth Profile Radius	RP = (PD sin ϕ) / 2
10.	Center Distance	CD = (PDg + PDp) / 2

Use the values from the table above or as calculated from the formulas and not them on the picture below.



Draw the profile in CAD.

NOTE: make sure you draw accurately and that all the elements are connected in the drawing. Do an array of the single tooth and then go back and make sure all the elements are connected. You will find that you have very precise gear drawn based on the Diametral Pitch System. Offset as you wish in LC based on an appropriate selected diameter cutter. If you wish you can radius the bottom of the teeth where they meet the root diameter if so desired.

DOING STUFF THE OLD FASHIOINED WAY WITH OUT ALL THOSE DUMB LITTLE LINES IN THE CODE,
RICH