

**Esercizio 1** torta a cuocere

massa kg	1	facce	2
D, cm	28	Lc Biot	0.008
volume, cm <sup>3</sup>	1000	Bi	<b>0.175</b>
rho	1000	lambda1	0.405333
Alat cm <sup>2</sup>	<b>615</b>	A1	1.027398
m <sup>2</sup>	0.0615	alfa	1.63E-07
sp cm	1.625	tempo	900
m	0.016249	Fo = tau	2.22
lambda	0.65	teta_x=0	0.71
Cp	4000	T x=0	78.64
T_amb	200	teta_sup	0.66
h	14	T sup	88.47
T_iniz	30		

0.15	0.175	0.2	Bi
0.3779	0.405333	0.4328	Lambda1
1.0237	1.027398	1.0311	A1
11			indice

**Esercizio 2** Aletta, Re-Nu piana

Tfilm	100	w m/s	10	lambda_ac	16	Tambiente	20
ro_aria	0.95	L_Re	0.080	perim	0.168	Tbase	180
Cp	1007	Spessore	0.004	Area	0.00032	Tsicura	45
lambda	0.0317	Re	<b>36409</b>	m	38.4	Lsicura m	0.048
mu	2.08E-05	Nu	113.1	1/m	0.026	efficacia	13.7
Pr	0.711	h	<b>44.88</b>	Q'_base>fi			<b>31.4</b>

**Esercizio 3** Fattori vista

	Vert-buco	vert-tutto	vert-hor	T °C	90	20
A cm	80	80		T hK	3.63	2.93
B cm	40	160		A m <sup>2</sup>	0.8	1.2
c cm	89.44	178.89		eps	0.8	0.9
F vista	0.191	0.382	<b>0.191</b>	F_vert-hor	0.191	
				Q' W	81.5	

**Esercizio 4** Q, L, politropica

Mm	29		1	2	3	1
R	286.69	V	1	1	0.25	1.00
Cp	1003.41	P bar	1	1.444	<b>10.05</b>	1.00
Cv	716.72	T °C	20	150	463	20
gamma	1.4	T K	293	423	736	293
m [kg]	<b>1.0000</b>	n			1.4	<b>1.66</b>
	<b>1.1905</b>	deltaU J		93174.1	224682.8	-317857
		Qin [J]		93174.1	0.0	-90206
		Lin [J]			224682.8	-227651

**Es 5** Rankine

			T °C	P kPa	x	h	s		ideale	reale
Tmin °C	40	1=LiqSat	40	7.384	0	167.6	0.5725	Qin	2952.78	2952.78
Pmax bar	160	2	40	16000	nd (<0)	<b>183.6</b>	"	L_nu_Tid	1225.51	1227.91
Tmax °C	450	2re				183.6		eta1	<b>41.5%</b>	<b>41.6%</b>
etaPpompa	1	5	450	16000	nd (>1)	3136.375	6.08755	etaC	56.7%	56.7%
etaTurb	1	6	40	7.384	<b>0.718</b>	<b>1894.8</b>	6.08755	eta2	<b>73.2%</b>	<b>73.3%</b>
		6re			<b>0.718</b>	1894.8				
		VapSat	40	7.384	1	2574.3	8.257			

Esercizio 6		frigorifero		K	°C	
T_stanza	28	Lin	150	Tinf	262	-11
T_frigor	4	COPid	3.80	Tsup	331	58
deltaT_ev	15	COPre	2.09	deltaT	69	
deltaT_cond	30	Q'sup W	463			
eff	55%	Q'inf W	313			

Es 7		aria umida mix, no condensa							
	m' kg/s	T °C	UR	Psat	Pvap	x	h	Trug	
fredda	1	10	100%	1227.6	1227.6	0.0076	29.3		
calda	2	28	65%	3815.2	2479.9	0.0156	68.0		
mix	3	22.1	77%	2680.372	2065.9	0.0129	55.0686	17.97	

Es 8		Moody							
D ug [m]	0.02	L tubo	5	f attrito	0.03				
A ug [m2]	0.000314	D tubo	0.02	ro w2/2 tut	49050				
Zmax [m]	5	w tubo	9.905						
vel@Zmax m/s	0	rho	1000			deltaP Pa	deltaP Bar	J/kg	Watt
Zugello [m]	0	mi	0.001	attrito	367875	3.68	368		
vel@Zug m/s	9.905	ni	0.000001	Z = vel	49000	0.49	49		
m' kg/s	3.110	Re	198091	<b>totale</b>	<b>416875</b>	<b>4</b>	<b>417</b>		<b>1296</b>