LAMPIRAN

Lampiran 1 Tabel Konversi

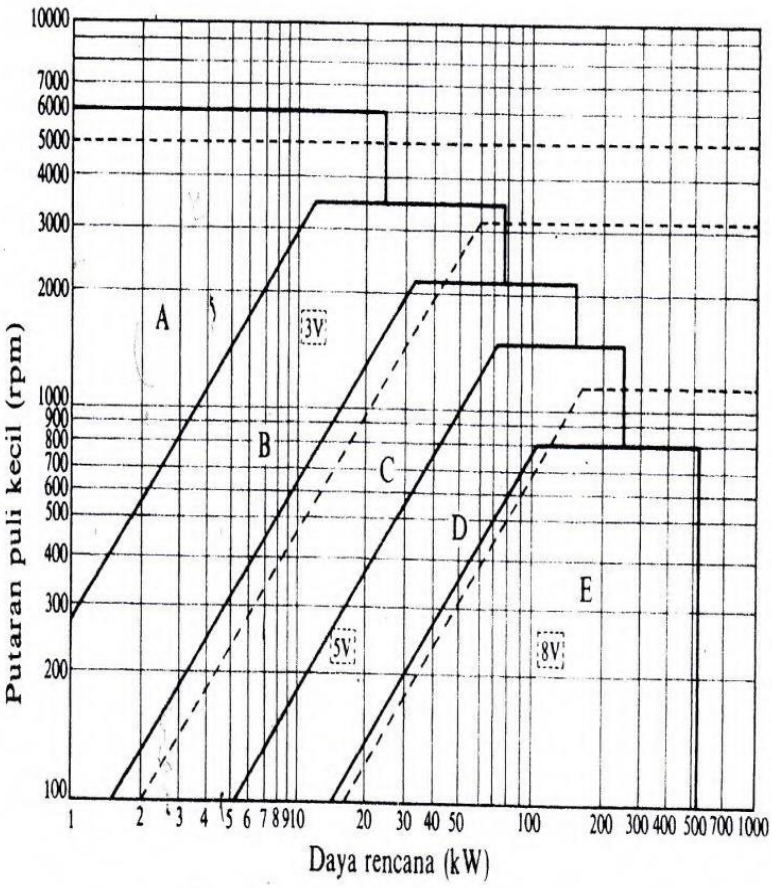
Table F-1 Selected Units Conversion Factors

Note That These Conversion Factors (and Others) are Built Into the *TKSolver* Files UNITMAST and STUDENT

Multiply this	by	this	to get	this
acceleration				
in/sec^2	x	0.0254	=	m/sec^2
ft/sec^2	x	12	=	in/sec^2
angles				
radian	x	57.2958	=	deg
area				
in^2	x	645.16	=	mm^2
ft^2	x	144	=	in^2
area moment of inertia				
in^4	x	416 231	=	mm^4
in^4	x	4.162E–07	=	m^4
m^4	x	1.0E+12	=	mm^4
m^4	x	1.0E+08	=	cm^4
ft^4	x	20 736	=	in^4
density				
lb/in^3	x	27.6805	=	g/cc
g/cc	x	0.001	=	g/mm^3
lb/ft^3	x	1 728	=	lb/in^3
kg/m^3	x	1.0E–06	=	g/mm^3
force				
lb	x	4.448	=	N
N	x	1.0E+05	=	dyne
ton (short)	x	2 000	=	lb
length				
in	x	25.4	=	mm
ft	x	12	=	in
mass				
blob	x	386.4	=	lb
slug	x	32.2	=	lb
blob	x	12	=	slug
kg	x	2.205	=	lb
kg	x	9.8083	=	N
kg	x	1 000	=	g

Multiply this	by	this	to get	this
mass moment of inertia				
$lb\text{-}in\text{-}sec^2$	x	0.1138	=	$N\text{-}m\text{-}sec^2$
moments and energy				
in-lb	x	0.1138	=	N-m
ft-lb	x	12	=	in-lb
N-m	x	8.7873	=	in-lb
N-m	x	0.7323	=	ft-lb
power				
HP	x	550	=	ft-lb/sec
HP	x	33 000	=	ft-lb/min
HP	x	6 600	=	in-lb/sec
HP	x	745.7	=	watts
N-m/sec	x	8.7873	=	in-lb/sec
pressure and stress				
psi	x	6 894.8	=	Pa
psi	x	6.895E-3	=	MPa
psi	x	144	=	psf
kpsi	x	1 000	=	psi
N/m^2	x	1	=	Pa
N/mm^2	x	1	=	MPa
spring rate				
lb/in	x	175.126	=	N/m
lb/ft	x	0.08333	=	lb/in
stress intensity				
$MPa\text{-}m^{0.5}$	x	0.909	=	$ksi\text{-}in^{0.5}$
velocity				
in/sec	x	0.0254	=	m/sec
ft/sec	x	12	=	in/sec
rad/sec	x	9.5493	=	rpm
volume				
in^3	x	16 387.2	=	mm^3
ft^3	x	1 728	=	in^3
cm^3	x	0.061023	=	in^3
m^3	x	1.0E+9	=	mm^3

Lampiran 2 Diagram Pemilihan Sabuk-V
(Suhariyanto;Elemen Mesin II. Hal 97)



Gbr. 5.3 Diagram pemilihan sabuk-V.

Lampiran 3 Panjang Sabuk V Standar
(Sularso; Dasar Perencanaan dan Pemilihan Elemen Mesin ; Hal 168)

Tabel 5.3 (b) Panjang sabuk-V standar.

Nomor nominal		Nomor nominal		Nomor nominal		Nomor nominal	
(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
10	254	45	1143	80	2032	115	2921
11	279	46	1168	81	2057	116	2946
12	305	47	1194	82	2083	117	2972
13	330	48	1219	83	2108	118	2997
14	356	49	1245	84	2134	119	3023
15	381	50	1270	85	2159	120	3048
16	406	51	1295	86	2184	121	3073
17	432	52	1321	87	2210	122	3099
18	457	53	1346	88	2235	123	3124
19	483	54	1372	89	2261	124	3150
20	508	55	1397	90	2286	125	3175
21	533	56	1422	91	2311	126	3200
22	559	57	1448	92	2337	127	3226
23	584	58	1473	93	2362	128	3251
24	610	59	1499	94	2388	129	3277
25	635	60	1524	95	2413	130	3302
26	660	61	1549	96	2438	131	3327
27	686	62	1575	97	2464	132	3353
28	711	63	1600	98	2489	133	3378
29	737	64	1626	99	2515	134	3404
30	762	65	1651	100	2540	135	3429
31	787	66	1676	101	2565	136	3454
32	813	67	1702	102	2591	137	3480
33	838	68	1727	103	2616	138	3505
34	864	69	1753	104	2642	139	3531
35	889	70	1778	105	2667	140	3556
36	914	71	1803	106	2692	141	3581
37	940	72	1829	107	2718	142	3607
39	965	73	1854	108	2743	143	3632
39	991	74	1880	109	2769	144	3658
40	1016	75	1905	110	2794	145	3683
41	1041	76	1930	111	2819	146	3708
42	1067	77	1956	112	2845	147	3734
43	1092	78	1981	113	2870	148	3759
44	1118	79	2007	114	2896	149	3785

Lampiran 4 Tabel Koefisien Gesek (f) antara belt dan pulley

(Suhariyanto; Elemen Mesin II, Hal

Type of belt	Pule material			
	Compressed paper	wood	steel	Cast iron
Leather :				
Tanned with vegetable compound	0.35	0.30	0.25	0.25
Tanned with mineral compound	050	0.45	0.40	0.40
Cotton :				
Solid woven	0.28	0.25	0.22	0.22
Stitched	0.25	0.23	0.20	0.20
Woolen	0.45	0.40	0.35	0.35
Rubber	0.35	0.32	0.30	0.30

Sumber : *(Dobrovolsky, 1985: 206)*

Lampiran 5 Dimensi V belt

(Suhariyanto;Elemen Mesin II. Hal 89)

Type of belt	Cross-sectional			Design length of belt, L Mm
	b mm	h mm	A cm^2	
O	10	6	0,47	400; 450; 560; 630; 710; 800; 900 1000; 1120; 1250; 1400; 1600 1800; 2000; 2240; 2500
A	13	8	0,81	560; 630; 710; 800; 900; 1000; 1120 1250; 1400; 1600; 1800; 2000 2240; 2500; 2800; 3150; 3550; 4000
B	17	10,5	1,38	800; 900; 1000; 1120; 1250; 1400 1600; 1800; 2000; 2240; 2500 2800; 3150; 3550; 4000; 4500 5000; 5600; 6300
C	22	13,5	2,3	1800; 2000; 2240; 2500; 2800 3150; 3550; 4000; 4500; 5000 5600; 6300; 7100; 8000; 9000; 10.000
D	32	19	4,75	3150; 3550; 4000; 4500; 5000 5600; 6300; 7100; 8000; 9000 10.000; 11.000; 12.500; 14.000
E	38	23,5	6,95	4500; 5000; 5600; 7100 8000; 9000; 10.000; 11.200; 12.500 14.000; 16.000; 18.000
F	50	30	11,7	6300; 7100; 8000; 9000; 10.000 11.200; 12.500; 14.000; 16.000; 18.000

Lampiran 6 Tabel Tipe dan Dimensi V belt

(*Dobrovolsky1985:21*)

Tabel 3-4 Tipe dan dimensi dari V-belt

Cross-section of V-belt		(Ukuran untuk Gambar 3.9a)						
		O	A	B	C	D	E	F
Cross-section area (A) in cm^2		0.5	0.8	1.4	2.3	4.8	7.0	11.7
In conformility with the standard design of inner* length of belt in mm	min	500*	500*	630*	1.800	3.150	4.500	6.300
	max	2.500	4.000	6.300	9.000	11.000	14.000	1.120*
Difference between design and inner length of belt in mm		25	33	40	55	76	95	120
Minimum allowable design diameters of pules in mm		63	90	125	200	315	500	800
Constans in formula (3-25)	a	23	25	28	30	32	32	32
	w	100	120	180	215	280	350	440
Maximum recommended velocity v max in m/sec		25	25	25	25	30	30	30
Design width of belt a_d in mm		8.5	11	14	19	27	32	42
Rated size of pule grooves (Fig.3-10)*	e	10	12.5	16	21	28.5	34	43
	c	2.5	3.5	5	6	8.5	10	12.5
	t	12	16	20	26	37.5	44.5	58
	s	8	10	12.5	17	24	29	38
	β°	34-40				36-40	38-40	

Lampiran 7 Faktor Kecepatan dan faktor sudut

(*Suhariyanto;Elemen Mesin II. Hal 88*)

Tabel 3-7. Faktor kecepatan (Cv)

Kecepatan belt v (m/s)	1	5	10	15	20	25	30
Belt datar, Cv	1,04	1,03	1,0	0,95	0,88	0,79	0,68
Vbelt, Cv	1,05	1,04	1,0	0,94	0,85	0,74	0,60

(Sumber :Dobrovolsky, 1985: 236)

Table 3-8 faktor sudut kontak Cα

Sudut kontak α (°)	80	120	140	160	180	220
Belt datar, Cα	-	0,82	0,88	0,94	1,0	1,12
V-belt, Cα	0,62	0,83	0,90	0,96	1,0	1,08

(Sumber : Dobrovolsky, 1985: 237)

Lampiran 8 Dimensi dan Bahan untuk Belt

(Suhariyanto;Elemen Mesin II. Hal 82)

Tabel (3-2). Dimensi dan bahan untuk Belt

	Leather	Rubber canvas	Solid-woven cotton	Woven woolen	Interstitched rubber	Woven semi-linen
Width *b* in mm	20-300	20-500	30-250	50-300	20-137	15-53
Thickness *h* in mm	Single 3-5.5 Double7 .5-10	2.5-13.5	4.5-6.5-8.5	6-9-11	1.75-2.5-3.3	1.75
UTS in kg/cm^2	200	4-10 (without layers), 370 (with layers)	350-405	300	300	500
Max elongation	10% at 100kg/cm^3	18% at rupture	20-25% at rupture	60% at rupture	16% at rupture	10% at rupture
Ratio D_{min}/h recommended	35	40	30-40	30	40	30
Allowable	25	30	25-35	25	30	25
Recommended max velocity max in m/sec	40	20-30	25	30	50	50
Specific weight in kg/dm^3	0.98	1.25-1.50	0.75-1.05	0.90-1.24	≈1.2	≈1.0
Constanta a	29	25	21	18	23	21
w (formula 3-25)	300	100	150	150	200	150
Modulus of Elastisitas, E_b in kg/cm^2	1.000-1.500	800-1.200	300-600	–	1.000-1.200	–

Sumber : *(Dobrovolsky, 1985: 214)*

Lampiran 9 Bahan Poros dan Nilai Kekuatan Tarik

(*Sularso,Kiyokatsu Suga;1994.Hal 192)*

Tabel 1.5 Standar baja.

Nama	Standar Jepang (JIS)	Standar Amerika (AISI), Inggris (BS), dan Jerman (DIN)
Baja karbon konstruksi mesin	S25C S30C S35C S40C S45C S50C S55C	AISI 1025, BS060A25 AISI 1030, BS060A30 AISI 1035, BS060A35, DIN C35 AISI 1040, BS060A40 AISI 1045, BS060A45, DIN C45, CK45 AISI 1050, BS060A50, DIN St 50.11 AISI 1055, BS060A55
Baja tempa	SF 40,45 50,55	ASTM A105-73
Baja nikel khrom	SNC SNC22	BS 653M31 BS En36
Baja nikel khrom molibden	SNCM 1 SNCM 2 SNCM 7 SNCM 8 SNCM22 SNCM23 SNCM25	AISI 4337 BS830M31 AISI 8645, BS En100D AISI 4340, BS817M40, 816M40 AISI 4315 AISI 4320, BS En325 BS En39B
Baja khrom	SCr 3 SCr 4 SCr 5 SCr21 SCr22	AISI 5135, BS530A36 AISI 5140, BS530A40 AISI 5145 AISI 5115 AISI 5120
Baja khrom molibden	SCM2 SCM3 SCM4 SCM5	AISI 4130, DIN 34CrMo4 AISI 4135, BS708A37, DIN34CrMo4 AISI 4140, BS708M40, DIN42CrMo4 AISI 4145, DIN50CrMo4

Tabel 1.1 Baja karbon untuk konstruksi mesin dan baja batang yang difinis dingin untuk poros.

Standar dan macam	Lambang	Perlakuan panas	Kekuatan tarik (kg/mm²)	Keterangan
Baja karbon konstruksi mesin (JIS G 4501)	S30C	Penormalan	48	
	S35C	"	52	
	S40C	"	55	
	S45C	"	58	
	S50C	"	62	
	S55C	"	66	
Batang baja yang difinis dingin	S35C-D	–	53	ditarik dingin, digerinda, dibubut, atau gabungan antara hal-hal tersebut
	S45C-D	–	60	
	S55C-D	–	72	

Lampiran 10 Tabel Konstruksi Baja

(Deutscman; Machine Design ; Hal.870-871)

Table A-2 Mechanical Properties of Plain Carbon and Alloy Steels (based on a 1 in. diameter specimen)

AISI Type	Condition	Tensile Strength, ksi	Yield Strength, ksi	Elongat. in 2 in., %	Reduction in Area, %	Hardness, BHN	Machinability (Based on 1112 = 100)
1010	HR	64	42	28	67	107	45
	CD	78	68	16	63	129	55
	CDA	64	48	28	65	131	55
1020	HR	65	43	36	59	143	50
	CD	78	66	20	55	156	65
	A	57	52	37	66	111	90
	N	64	50	36	68	131	75
1030	HR & turned	72	44	31	63	140	—
	CD	84	76	16	57	177	65
	A	67	50	31	58	126	—
	N	76	51	32	61	149	—
1040	HR	91	58	27	50	201	63
	CD	100	88	17	42	207	65
	A	75	51	30	57	149	—
	N	85	50	28	55	170	60
1045	HR	98	59	24	45	212	56
	CD	103	90	14	40	217	60
	A	90	55	27	54	174	60
	N	99	61	25	49	207	—
1050	HR	105	67	15	—	—	—
	CD	114	104	9	—	—	54
	A	92	43	24	40	187	—
	N	109	62	20	39	217	—
1095	HR	142	83	18	38	295	—
	A	95	38	13	21	192	—
	N	147	73	10	14	293	—
1118	HR	75	50	35	55	140	—
	CD	85	75	25	55	170	80
	A	65	41	35	67	131	80
	N	69	46	34	66	143	80
2330	CD	105	90	20	50	212	50
	A	86	61	28	58	179	50
	N	100	68	26	56	207	—
3140	CD	107	92	17	50	212	55
	A	100	61	25	51	197	55
	N	129	87	20	58	262	—
4130	HRA	86	56	29	57	183	65
	CDA	98	87	21	52	201	70
	N	97	63	26	60	197	50

Table A-2 (continued)

AISI Type	Condition	Tensile Strength, ksi	Yield Strength, ksi	Elongat. in 2 in., %	Reduction in Area, %	Hardness, BHN	Machinability (Based on 1112 = 100)
4140	HRA	90	63	27	58	187	57
	CDA	102	90	18	50	223	66
	N	148	95	18	47	302	—
4340	HRA	101	69	21	45	207	45
	CDA	110	99	16	42	223	50
	N	185	126	11	41	363	—
4620	HR	85	63	28	64	183	58
	CD	101	85	22	60	207	64
	A	74	54	31	60	149	55
	N	83	53	29	67	174	—
4640	CDA	117	95	15	43	235	55
	A	98	63	24	51	179	55
	N	123	87	19	51	248	—
5120	CD	92	77	20	55	187	65
	CDA	87	70	23	60	179	65
5140	CDA	105	88	18	52	212	60
52100	HRA	100	81	25	57	192	45
	HRN	185	139	13	20	363	—
6150	CDA	111	95	14	44	223	45
	N	136	89	22	61	269	—
8620	HR	89	65	25	63	192	60
	CD	102	85	22	58	212	63
	A	78	56	31	62	149	—
	N	92	52	26	60	183	—

SOURCE: *ASME Handbook-Material Properties*, McGraw-Hill Book Co., 1954; *Ryerson Data Book*, Joseph T. Ryerson and Sons, Inc., 1965.
NOTE: HR = hot rolled, HRA = hot rolled annealed, CD = cold drawn, CDA = cold drawn annealed, HRN = hot rolled normalized, A = annealed, N = normalized.

Lampiran 11 Dimensi Standart Roll Bearing dan Gaya Dinamis Bearing

(Suhariyanto, Elemen Mesin II; Hal. Lampiran IV)

Standar dimensions and load rating of Radial Rolling Bearing

(Co = basic static load ,lb ; C = basic dynamic load rating, lb)

Bearing Bore, d	Outside Dia. D	Max Fillet Radius	Width	Dimension Series 03											
				Self aligning Ball Bearing		Single Row Deep Groove Ball Bearing		Anguler Contact Sleep angle Ball Bearing		Cylindrical Roller Bearing		Spherical Roller Bearing	
mm	mm	in	mm	Co	C	Co	C	Co	C	Co	C	Co	C
4	16	0,012	5										
5	19	0,012	6										
6													
7													
8													
9													
10	35	0,024	11			845	1400						
12	37	0,039	12	530	1630	1040	1680						
15	42	0,039	13	590	1650	1220	1960						
17	47	0,039	14	820	2170	1470	2340						
20	52	0,039	15	900	2150	1750	2750	1920	3000				
25	62	0,039	17	1350	3110	2390	3660	2870	4220	2870	5130	6000	6700
30	72	0,039	19	1740	3700	3340	4850	3840	5370	3940	6760	8500	9500
35	80	0,059	21	2210	4350	4020	5750	4620	6340	5370	8830	9800	10800
40	90	0,059	23	2740	5110	5020	7040	5770	7740	6340	10300	12900	13700
45	100	0,059	25	3580	6600	6730	9120	7730	10100	9030	14200	17300	17000
50	110	0,079	27	3930	7510	8010	10700	9200	11800	11100	17000	18300	19300

Sumber : Deutschman, 1975

Lampiran IV : Beban Equivalen Bearing

Factor X and Y for Ball and Roller Bearings

Contact anguler α , deg	(i.Fa/Co)	Single-Row Bearing (Fa/V.Fr) >e		Double-Row Bearing (Fa/V.Fr) <e		Double-Row Bearing (Fa/V.Fr) >e		e
		X	Y	X	Y	X	Y	
Radial Contact Ball Bearing								
	0,014	0,56	2,30	1	0	0,56	2,30	0,19
	0,028		1,99				1,99	0,22
	0,056		1,71				1,71	0,26
	0,084		1,55				1,55	0,28
	0,110		1,45				1,45	0,30
	0,170		1,31				1,31	0,34
	0,280		1,15				1,15	0,38
	0,420		1,04				1,04	0,42
	0,560		1,00				1,00	0,44
Anguler Contact Ball Bearing								
5	0,014	0,56	2,30	Use X,Y and e evaluases applicable to single-row radial contact bearing	2,78	0,78	3,74	0,23
	0,028		1,99		2,40		3,23	0,26
	0,056		1,71		2,07		2,78	0,30
	0,085		1,55		1,87		2,52	0,34
	0,110		1,45		1,75		2,36	0,36
	0,170		1,31		1,58		2,13	0,40
	0,280		1,15		1,39		1,87	0,45
	0,420		1,04		1,26		1,69	0,50
	0,560		1,00		1,21		1,63	0,52
10	0,014	0,46	1,88	1,0	2,18	0,75	2,30	0,19
	0,029		1,71		1,98		1,99	0,22
	0,057		1,52		1,76		1,71	0,26
	0,086		1,41		1,63		1,55	0,28
	0,110		1,34		1,55		1,45	0,30
	0,170		1,23		1,42		1,31	0,34
	0,290		1,10		1,27		1,15	0,38
	0,430		1,01		1,17		1,04	0,42
	0,570		1,00		1,16		1,00	0,44

Catatan :
(Fa/V.Fr) = e , maka : X = 1 dan Y = 0 (Single-row Bearing)
Sumber : Deutschman, 1975

Lampiran 12 Jenis Beban Ball Bearing

(Suhariyanto; Elemen Mesin II; Hal.18)

Type Of Service	Multiply Calculated Load by Following Factors	
	Ball Bearing	Roller Bearing
Uniform and steady load	1,0	1,0
Light shock load	1,5	1,0
Moderate shock load	2.0	1,3
Heavy shock load	2,5	1,7
Extreme and indeterminate shock load	3,0	2,0

Lampiran 13 Perhitungan Momen Bending Poros

Potongan		
A	X	Hasil
-108.0451	0	0
-108.0451	1	-108.0451
-108.0451	2	-216.0902
-108.0451	3	-324.1353
-108.0451	4	-432.1804
-108.0451	5	-540.2255
-108.0451	6	-648.2706
-108.0451	7	-756.3157
-108.0451	8	-864.3608
-108.0451	9	-972.4059
-108.0451	10	-1080.451
-108.0451	11	-1188.4961
-108.0451	12	-1296.5412
-108.0451	13	-1404.5863
-108.0451	14	-1512.6314
-108.0451	15	-1620.6765
-108.0451	16	-1728.7216
-108.0451	17	-1836.7667

Potongan		
A	X	Hasil
-108.0451	18	-1944.8118
-108.0451	19	-2052.8569
-108.0451	20	-2160.902
-108.0451	21	-2268.9471
-108.0451	22	-2376.9922
-108.0451	23	-2485.0373
-108.0451	24	-2593.0824
-108.0451	25	-2701.1275
-108.0451	26	-2809.1726
-108.0451	27	-2917.2177
-108.0451	28	-3025.2628
-108.0451	29	-3133.3079
-108.0451	30	-3241.353
-108.0451	31	-3349.3981
-108.0451	32	-3457.4432
-108.0451	33	-3565.4883
-108.0451	34	-3673.5334

Potongan 2			
A	B	X	Hasil
-3673.5334	65.7424	0	-3673.5334
-3673.5334	65.7424	1	-3607.791
-3673.5334	65.7424	2	-3542.0486
-3673.5334	65.7424	3	-3476.3062
-3673.5334	65.7424	4	-3410.5638
-3673.5334	65.7424	5	-3344.8214
-3673.5334	65.7424	6	-3279.079
-3673.5334	65.7424	7	-3213.3366
-3673.5334	65.7424	8	-3147.5942
-3673.5334	65.7424	9	-3081.8518
-3673.5334	65.7424	10	-3016.1094
-3673.5334	65.7424	11	-2950.367
-3673.5334	65.7424	12	-2884.6246
-3673.5334	65.7424	13	-2818.8822
-3673.5334	65.7424	14	-2753.1398
-3673.5334	65.7424	15	-2687.3974
-3673.5334	65.7424	16	-2621.655
-3673.5334	65.7424	17	-2555.9126
-3673.5334	65.7424	18	-2490.1702
-3673.5334	65.7424	19	-2424.4278
-3673.5334	65.7424	20	-2358.6854
-3673.5334	65.7424	21	-2292.943
-3673.5334	65.7424	22	-2227.2006
-3673.5334	65.7424	23	-2161.4582
-3673.5334	65.7424	24	-2095.7158
-3673.5334	65.7424	25	-2029.9734
-3673.5334	65.7424	26	-1964.231
-3673.5334	65.7424	27	-1898.4886
-3673.5334	65.7424	28	-1832.7462
-3673.5334	65.7424	29	-1767.0038
-3673.5334	65.7424	30	-1701.2614
-3673.5334	65.7424	31	-1635.519
-3673.5334	65.7424	32	-1569.7766
-3673.5334	65.7424	33	-1504.0342
-3673.5334	65.7424	34	-1438.2918
-3673.5334	65.7424	35	-1372.5494
-3673.5334	65.7424	36	-1306.807
-3673.5334	65.7424	37	-1241.0646

-3673.5334	65.7424	38	-1175.3222
-3673.5334	65.7424	39	-1109.5798
-3673.5334	65.7424	40	-1043.8374
-3673.5334	65.7424	41	-978.095
-3673.5334	65.7424	42	-912.3526
-3673.5334	65.7424	43	-846.6102
-3673.5334	65.7424	44	-780.8678
-3673.5334	65.7424	45	-715.1254
-3673.5334	65.7424	46	-649.383
-3673.5334	65.7424	47	-583.6406
-3673.5334	65.7424	48	-517.8982
-3673.5334	65.7424	49	-452.1558
-3673.5334	65.7424	50	-386.4134

Potongan 3			
A	B	X	Hasil
-386.4134	9.904	0	-386.4134
-386.4134	9.904	1	-376.5094
-386.4134	9.904	2	-366.6054
-386.4134	9.904	3	-356.7014
-386.4134	9.904	4	-346.7974
-386.4134	9.904	5	-336.8934
-386.4134	9.904	6	-326.9894
-386.4134	9.904	7	-317.0854
-386.4134	9.904	8	-307.1814
-386.4134	9.904	9	-297.2774
-386.4134	9.904	10	-287.3734
-386.4134	9.904	11	-277.4694
-386.4134	9.904	12	-267.5654
-386.4134	9.904	13	-257.6614
-386.4134	9.904	14	-247.7574
-386.4134	9.904	15	-237.8534
-386.4134	9.904	16	-227.9494
-386.4134	9.904	17	-218.0454
-386.4134	9.904	18	-208.1414
-386.4134	9.904	19	-198.2374
-386.4134	9.904	20	-188.3334
-386.4134	9.904	21	-178.4294
-386.4134	9.904	22	-168.5254

-386.4134	9.904	23	-158.6214
-386.4134	9.904	24	-148.7174
-386.4134	9.904	25	-138.8134
-386.4134	9.904	26	-128.9094
-386.4134	9.904	27	-119.0054
-386.4134	9.904	28	-109.1014
-386.4134	9.904	29	-99.1974
-386.4134	9.904	30	-89.2934
-386.4134	9.904	31	-79.3894
-386.4134	9.904	32	-69.4854
-386.4134	9.904	33	-59.5814
-386.4134	9.904	34	-49.6774
-386.4134	9.904	35	-39.7734
-386.4134	9.904	36	-29.8694
-386.4134	9.904	37	-19.9654
-386.4134	9.904	38	-10.0614
-386.4134	9.904	39	-0.1574

Tinjauan Horizontal

Potongan		
A	X	Hasil
-2.1523	0	0
-2.1523	1	-2.1523
-2.1523	2	-4.3046
-2.1523	3	-6.4569
-2.1523	4	-8.6092
-2.1523	5	-10.7615
-2.1523	6	-12.9138
-2.1523	7	-15.0661
-2.1523	8	-17.2184
-2.1523	9	-19.3707
-2.1523	10	-21.523
-2.1523	11	-23.6753
-2.1523	12	-25.8276
-2.1523	13	-27.9799
-2.1523	14	-30.1322
-2.1523	15	-32.2845
-2.1523	16	-34.4368
-2.1523	17	-36.5891

Potongan		
A	X	Hasil
-2.1523	18	-38.7414
-2.1523	19	-40.8937
-2.1523	20	-43.046
-2.1523	21	-45.1983
-2.1523	22	-47.3506
-2.1523	23	-49.5029
-2.1523	24	-51.6552
-2.1523	25	-53.8075
-2.1523	26	-55.9598
-2.1523	27	-58.1121
-2.1523	28	-60.2644
-2.1523	29	-62.4167
-2.1523	30	-64.569
-2.1523	31	-66.7213
-2.1523	32	-68.8736
-2.1523	33	-71.0259
-2.1523	34	-73.1782

Potongan 2			
A	B	X	Hasil
-73.1782	1.4636	0	-73.1782
-73.1782	1.4636	1	-71.7146
-73.1782	1.4636	2	-70.251
-73.1782	1.4636	3	-68.7874
-73.1782	1.4636	4	-67.3238
-73.1782	1.4636	5	-65.8602
-73.1782	1.4636	6	-64.3966
-73.1782	1.4636	7	-62.933
-73.1782	1.4636	8	-61.4694
-73.1782	1.4636	9	-60.0058
-73.1782	1.4636	10	-58.5422
-73.1782	1.4636	11	-57.0786
-73.1782	1.4636	12	-55.615
-73.1782	1.4636	13	-54.1514
-73.1782	1.4636	14	-52.6878
-73.1782	1.4636	15	-51.2242
-73.1782	1.4636	16	-49.7606
-73.1782	1.4636	17	-48.297
-73.1782	1.4636	18	-46.8334
-73.1782	1.4636	19	-45.3698
-73.1782	1.4636	20	-43.9062
-73.1782	1.4636	21	-42.4426
-73.1782	1.4636	22	-40.979
-73.1782	1.4636	23	-39.5154
-73.1782	1.4636	24	-38.0518
-73.1782	1.4636	25	-36.5882
-73.1782	1.4636	26	-35.1246
-73.1782	1.4636	27	-33.661
-73.1782	1.4636	28	-32.1974
-73.1782	1.4636	29	-30.7338
-73.1782	1.4636	30	-29.2702
-73.1782	1.4636	31	-27.8066
-73.1782	1.4636	32	-26.343
-73.1782	1.4636	33	-24.8794
-73.1782	1.4636	34	-23.4158
-73.1782	1.4636	35	-21.9522
-73.1782	1.4636	36	-20.4886
-73.1782	1.4636	37	-19.025

-73.1782	1.4636	38	-17.5614
-73.1782	1.4636	39	-16.0978
-73.1782	1.4636	40	-14.6342
-73.1782	1.4636	41	-13.1706
-73.1782	1.4636	42	-11.707
-73.1782	1.4636	43	-10.2434
-73.1782	1.4636	44	-8.7798
-73.1782	1.4636	45	-7.3162
-73.1782	1.4636	46	-5.8526
-73.1782	1.4636	47	-4.389
-73.1782	1.4636	48	-2.9254
-73.1782	1.4636	49	-1.4618
-73.1782	1.4636	50	0.0018

Potongan 3			
A	B	X	Hasil
0.0018	0	0	0.0018
0.0018	0	1	0.0018
0.0018	0	2	0.0018
0.0018	0	3	0.0018
0.0018	0	4	0.0018
0.0018	0	5	0.0018
0.0018	0	6	0.0018
0.0018	0	7	0.0018
0.0018	0	8	0.0018
0.0018	0	9	0.0018
0.0018	0	10	0.0018
0.0018	0	11	0.0018
0.0018	0	12	0.0018
0.0018	0	13	0.0018
0.0018	0	14	0.0018
0.0018	0	15	0.0018
0.0018	0	16	0.0018
0.0018	0	17	0.0018
0.0018	0	18	0.0018
0.0018	0	19	0.0018
0.0018	0	20	0.0018
0.0018	0	21	0.0018
0.0018	0	22	0.0018

0.0018	0	23	0.0018
0.0018	0	24	0.0018
0.0018	0	25	0.0018
0.0018	0	26	0.0018
0.0018	0	27	0.0018
0.0018	0	28	0.0018
0.0018	0	29	0.0018
0.0018	0	30	0.0018
0.0018	0	31	0.0018
0.0018	0	32	0.0018
0.0018	0	33	0.0018
0.0018	0	34	0.0018
0.0018	0	35	0.0018
0.0018	0	36	0.0018
0.0018	0	37	0.0018
0.0018	0	38	0.0018
0.0018	0	39	0.0018

BIOGRAFI

Teja Oktavianto lahir di Gresik, 26 Oktober 1999. Anak kedua dari 2 bersaudara dari pasangan Buamat dan Sudiyati. Penulis menyelesaikan pendidikan Sekolah Dasar di SDN Petiken 1, Kab Gresik lulus tahun 2011, setelah itu melanjutkan ke jenjang Sekolah Menengah Pertama di Mts Sunan Giri, Kab Gresik lulus tahun 2014, dan kemudian melanjutkan ke jenjang Sekolah Menengah Atas di SMK Ypm 1 Taman Kab Sidoarjo lulus tahun 2017. Semasa SMK penulis aktif mengikuti ekstrakulikuler yaitu pramuka.

Pada tahun 2017 penulis melanjutkan Pendidikan di perguruan tinggi swasta, tepatnya di Universitas 17 Agustus 1945 Surabaya Fakultas Teknik Program Studi Teknik Industri. Berikut merupakan email penulis yang dapat di hubungi Tejaoktavianto985@gmail.com