

masing - masing variabel penelitian

rd.

TAHUN	BIAYA PENGEMBANGAN (X1)	BIAYA PROMOSI (X2)	VOLUME PENJUALAN (Y)
1987	632.300.976	120.312.657	2.412.936.223
1988	635.655.880	120.646.811	2.299.538.517
1989	645.923.457	114.976.926	2.601.719.811
1990	900.628.900	130.085.991	2.799.839.654
1991	1.242.655.870	195.988.776	4.525.626.976

Untuk mempermudah perhitungan masing - masing nilai dibagi 1.000.000

Rp. 000.000

TAHUN	BIAYA PENGEMBANGAN (X1)	BIAYA PROMOSI (X2)	VOLUME PENJUALAN (Y)
1987	632,30	120,31	2.412,94
1988	635,66	120,65	2.299,54
1989	645,92	114,98	2.601,72
1990	900,83	130,09	2.799,84
1991	1.242,66	195,99	4.525,63
Total	4.057,37	682,01	14.639,66

Rp. 000.000

TAHUN	(X1)2	(X2)2	(Y)2
1987	399.804,52	14.475,14	5.822.261,22
1988	404.058,40	14.555,65	5.287.877,39
1989	417.217,11	13.219,69	6.768.945,97
1990	811.492,71	16.922,37	7.839.102,09
1991	1.544.193,61	38.411,60	20.481.299,53
Total	3.576.766,35	97.584,45	46.199.486,20

Rp. 000.000

TAHUN	(X1Y)	(X2Y)	(X1X2)
1987	1.525.701,93	290.306,77	76.073,81
1988	1.461.719,18	277.431,99	76.689,85
1989	1.680.511,85	299.137,75	74.266,29
1990	2.522.176,48	364.219,92	117.185,22
1991	5.623.796,93	886.972,09	243.546,60
Total	12.813.902,37	2.118.068,51	587.761,78

Lampiran :

TAHUN	BIAYA PENGEMBANGAN	VOLUME PENJUALAN
1987	632.300.976	2.412.936.223
1988	635.655.880	2.299.538.517
1989	645.923.457	2.601.719.811
1990	900.828.900	2.799.839.654
1991	1.242.655.870	4.525.626.976

HUBUNGAN ANTARA BIAYA PENGEMBANGAN PRODUK
DENGAN VOLUME PENJUALAN

Rp 000.000,00

TAHUN	X	Y	(X)2	Y2	XY
1987	632.30	2.412.94	399.804.52	5.822.261.21	1.525.701.93
1988	635.66	2.299.54	404.058.40	5.287.877.39	1.461.715.18
1989	645.92	2.601.72	417.217.11	6.768.945.97	1.680.511.85
1990	900.83	2.799.84	811.492.71	7.839.102.09	2.522.176.48
1991	1.242.66	4.525.63	1.544.193.61	20.481.299.53	5.623.796.93
TOTAL	4.057.37	14.639.66	3.576.766.35	46.199.486.20	12.813.902.37

KETERANGAN :

X ADALAH BIAYA PENGEMBANGAN PRODUK

Y ADALAH VOLUME PENJUALAN

KORELASI ANTARA BIAYA PENGEMBANGAN DAN VOLUME PENJUALAN

N	5,00
∑X	4.057,37
∑(X)2	3.576.766,35
∑Y	14.639,66
∑(Y)2	46.199.486,20
∑XY	12.813.902,37
$r = \frac{64069511}{\sqrt{1421620. \cdot 16677751.4866}}$	
$r = \frac{4671061.}{\sqrt{2.4E+13}}$	
$r = \frac{4671061.}{4869233.}$	
$r = 0,959$	

Perhitungan Uji t untuk mencari keberartian hubungan antara biaya pemasaran produk dengan volume penjualan

Rumus Uji t

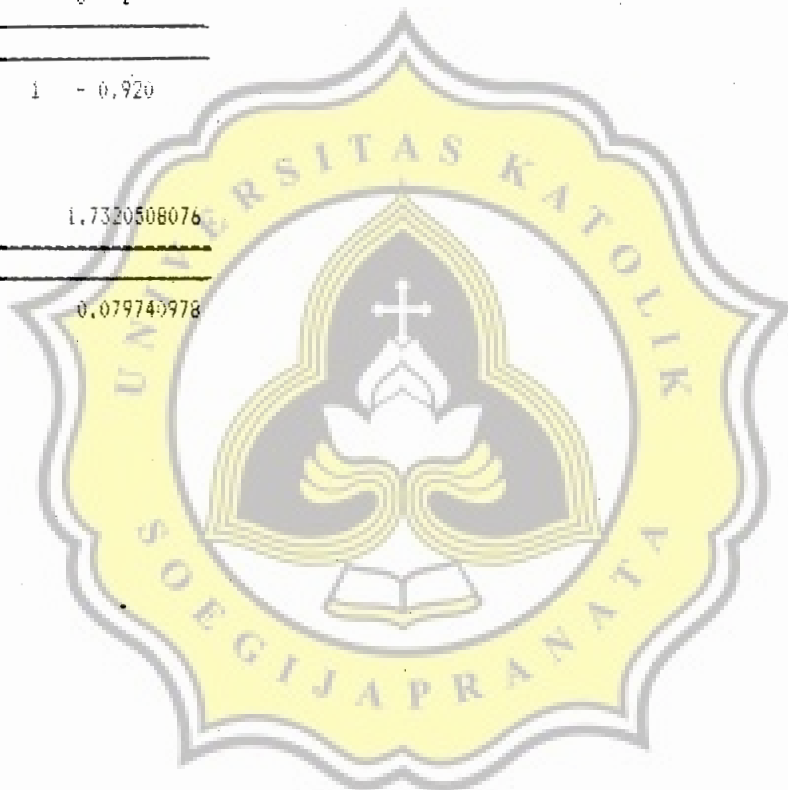
$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t = \frac{0,959301\sqrt{5-2}}{\sqrt{1-0,920}}$$

$$t = \frac{0,959 \cdot 1,7320508076}{\sqrt{0,079740978}}$$

$$t = \frac{1,661556}{0,282384}$$

$$t = 5,884$$



TAHUN	BIAYA PROMOSI	VOLUME PENJUALAN
1987	120.312.657	2.412.936.223
1988	120.646.811	2.299.538.517
1989	114.976.926	2.601.719.811
1990	130.085.991	2.799.839.654
1991	195.988.776	4.525.626.976

HUBUNGAN ANTARA BIAYA PROMOSI
DENGAN VOLUME PENJUALAN

Rp 000,000.00

TAHUN	X	Y	(X)2	Y2	XY
1987	120,31	2.412,94	14.475,14	5.822.261,21	290.306,77
1988	120,65	2.299,54	14.555,65	5.287.877,39	277.431,99
1989	114,98	2.601,72	13.219,69	6.768.945,97	299.137,75
1990	130,09	2.799,84	16.922,36	7.839.102,09	364.219,91
1991	195,99	4.525,63	38.411,60	20.481.299,53	886.972,09
TOTAL	682,01	14.639,66	97.584,45	46.199.486,20	2.118.068,51

KETERANGAN :
X ADALAH BIAYA PROMOSI
Y ADALAH VOLUME PENJUALAN

KORELASI ANTARA BIAYA PROMOSI DENGAN VOLUME PENJUALAN

N	5,00
(X	682,01
{(X)2	97.584,45
{Y	14.639,66
{(Y)2	46.199.486,20
{XY	2.118.068,51

$$r = \frac{10590342 - \frac{682,01 \times 14639,66}{5}}{\sqrt{22783,01 \times 16677751,4868}}$$

$$r = \frac{605930,2}{\sqrt{3.8E+11}}$$

$$r = \frac{605930,2}{616416,6}$$

$$r = 0,983$$

Pernutungan Uji t untuk mencari keberartian hubungan antara biaya promosi dengan volume penjualan

Rumus Uji t

$$t = \frac{r \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$t = \frac{0,982988 \sqrt{5 - 2}}{\sqrt{1 - 0,966}}$$

$$t = \frac{0,983 \sqrt{1,7320508076}}{\sqrt{0,033734232}}$$

$$t = \frac{1,702585}{0,183668}$$

$$t = 9,270$$



TAHUN	BIAYA PENGEMBANGAN	BIAYA PROMOSI
1987	632.300.976	120.312.657
1988	635.655.880	120.646.811
1989	645.923.457	114.976.926
1990	900.828.900	130.065.991
1991	1.242.655.870	195.988.776

HUBUNGAN ANTARA BIAYA PENGEMBANGAN PRODUK
DENGAN BIAYA PROMOSI

Rd 000,000.00

TAHUN	X	Y	(X)2	Y2	XY
1987	632.30	120.31	399.804.52	14.475.14	76.073.81
1988	635.66	120.65	404.058.40	14.555.65	76.689.85
1989	645.92	114.98	417.217.11	13.219.69	74.266.29
1990	900.83	130.09	811.492.71	16.922.36	117.185.22
1991	1.242.66	195.99	1.544.193.61	38.411.60	243.546.60
TOTAL	4.057.37	682.01	3.576.766.35	97.584.45	587.761.78

KETERANGAN :

X ADALAH BIAYA PENGEMBANGAN

Y ADALAH BIAYA PROMOSI

KORELASI ANTARA BIAYA PENGEMBANGAN PRODUK DENGAN BIAYA PROMOSI

N	5,00
ΣX	4.057,37
Σ(X)2	3.576.766,35
ΣY	682,01
Σ(Y)2	97.584,45
ΣXY	587.761,78

$$r = \frac{2938808, \quad = \quad 2767168,2662}{\sqrt{1421620. \quad \quad \quad 22783,012877}}$$

$$r = \frac{171640,6}{\sqrt{3.2E+10}}$$

$$r = \frac{171640,6}{179968,8}$$

$$r = 0,954$$

Pernutungan Uji t untuk mencari keberartian hubungan antara biaya pengembangan produk dengan biaya promosi

Rumus uji t

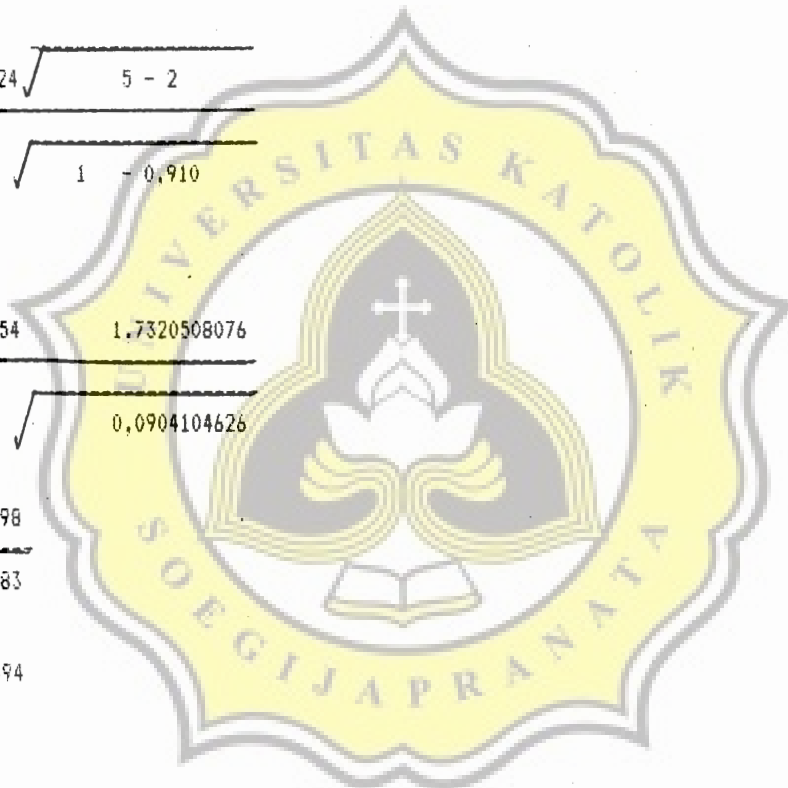
$$t = \frac{r \sqrt{n - 2}}{\sqrt{1 - (r)^2}}$$

$$t = \frac{0,953724 \sqrt{5 - 2}}{\sqrt{1 - 0,910}}$$

$$t = \frac{0,954 \cdot 1,7320508076}{\sqrt{0,0904104626}}$$

$$t = \frac{1,651898}{0,300683}$$

$$t = 5,494$$



Lampiran 4

PERHITUNGAN KORELASI BERGANDA

$$R_{v.12} = \sqrt{\frac{r_{2v1}^2 + r_{2v2}^2 - 2 r_{v1} r_{v2} r_{12}}{1 - r_{12}^2}}$$

DIKETAHUI

r_{v1}	=	0,959	r_{2v1}	=	0,920
r_{v2}	=	0,983	r_{2v2}	=	0,966
r_{12}	=	0,954	r_{212}	=	0,910

$$R_{v.12} = \sqrt{\frac{0,919681 + 0,966289 - 2 \cdot 0,959 \cdot 0,983 \cdot 0,954}{1 - 0,910116}}$$

$$R_{v.12} = \sqrt{\frac{1,88597}{0,089884}}$$

$$R_{v.12} = \sqrt{\frac{0,087304}{0,089884}}$$

$$R_{v.12} = 0,985544$$

Koefisien Determinasi

$$R^2 = 0,971297$$

$$R_{v12} = 0.9855$$

$$F = \frac{R^2 / K}{(1 - R^2) / (n - k - 1)}$$

$$F = \frac{0.971210 \quad 2}{0.028789 \quad 2}$$

$$F = \frac{0.485605}{0.014394}$$

$$F = 33.735$$



Lampiran 5

Perhitungan Regresi
diketahui

{X1	4.057,37	{X	12.813.902,37
{X2	682,01	{X	2.118.068,51
{Y	14.639,66	{X	587.761,78
{{X1}2	3.576.766,35		
{{X2}2	97.584,45		
{{Y}2	46.199.486,20		

DATA DATA TERSEBUT DISEDERHANAKAN

{Y	2.928	{X	934.212,35
{X1	811	{X	121.186,05
{X2	136,40	{X	34.328,13
{{Y}2	3.335.550,30		
{{X1}2	284.324,07		
{{X2}2	4.556,60		

persamaan I	934.212,35 =	284.324,07	+	34.328,13
Persamaan III	121.186,05 =	34.328,13	+	4.556,60

32.069.760.718,68	9.760.312.969,38	1.178.420.353,84
34.456.110.065,86	9.760.312.969,38	1.295.551.787,17
(2.386.349.347,18)	0,00	(117.131.433,33)

b2 = 20,37

Disub kepersamaan II untuk mencari b1

32.069.760.718,68 =	9.760.312.969,38	+	1.178.420.353,84
32.069.760.718,68 =	9.760.312.969,38	+	24.008.266.287,50
9.760.312.969,38 =	8.061.494.431,18		

b1 = 0,83

Mencari a

2.927,93 = a	+	670,23	+	2.778,96
2.927,93 = a	+	3.449,19		

a = (521,26)

Perhitungan kDefisien Regresi berqandanya

$$R = \sqrt{\frac{SSR}{SST}}$$

SSR	=	771.609,23	2.468.955,06
SSR	=	3.240.564,29	
SST	=	3.335.550,30	

R = 0,986

UJI STATISTIK F UNTUK REGRESI BERGANDA

$$R = 0.9855$$

$$F = \frac{R^2 / k}{(1 - R^2) / (n - k - 1)}$$

$$F = \frac{0.971210 \quad 2}{0.028789 \quad 2}$$

$$F = \frac{0.485605}{0.014394}$$

$$F = 33.735$$

