PRACTICAL NO 8

1. Monthly sales (’00 Rs) of 20 small shops are given below 120,115,130,140,180,210,180,120,130,150,100,190,210,160,150,160,190,200,170,152 find variance standard deviation and coefficient of variation.

ANS.> a=c(120,115,130,140,180,210,180,120,130,150,100,190,210,160,150,160,190,200,170,152)

> a

[1] 120 115 130 140 180 210 180 120 130 150 100 190 210 160 150 160 190 200 170 152

> m=mean(a)

> n=length(a)

> n

[1] 20

> v=((n-1)/n)\*v1

> v

[1] 1024.827

> sd=sqrt(v)

> sd

[1] 32.01293

> cv=(sd\*100)/m

> cv

[1] 20.2806

1. the scores in test for 20 students is given below 20,15,19,17,21,16,15,22,24,12,17,13,12,18,17,19,16,13,23,10 find coefficient of variation

ANS.> a=c(20,15,19,17,21,16,15,22,24,12,17,13,12,18,17,19,16,13,23,10)

> n=length(a)

> m=mean(a)

> v1=var(a)

> v=((n-1)/n)\*v1

> v

[1] 14.2475

> sd=sqrt(v)

> sd

[1] 3.774586

> cv=(sd\*100)/m

> cv

[1] 22.26894

1. find variance standard deviation and coefficient for the following data

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Frequency | 5 | 14 | 21 | 23 | 60 | 80 | 86 | 125 | 2 | 93 | 56 | 43 | 32 | 24 | 22 | 16 |

ANS.> f=c(5,14,21,23,60,80,86,125,2,93,56,43,32,24,22,16)

> g=seq(0,15,1)

> n=length(f)

> data=rep(g,f)

> v1=var(data)

> v1

[1] 11.01694

> v=((n-1)/n)\*v1

> v

[1] 10.32838

> sd=sqrt(v)

> sd

[1] 3.213779

> cv=(sd\*100)/mean(data)

> cv

[1] 42.68016

1. find the standard deviation and coefficient of variation for the following data

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Frequency | 24 | 42 | 85 | 120 | 110 | 98 | 75 | 56 | 32 | 18 |

ANS. > f=c(24,42,85,120,110,98,75,56,32,18)

> g=seq(0,9,1)

> n=length(f)

> data=rep(g,f)

> v1=var(data)

> v1

[1] 4.648632

> v=((n-1)/n)\*v1

> v

[1] 4.183769

> sd=sqrt(v)

> sd

[1] 2.045426

> cv=(sd\*100)/mean(data)

> cv

[1] 48.87695

1. Find the variance and standard deviation for the following data

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Age | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| No of person | 25 | 42 | 28 | 15 | 10 |

ANS. > x=seq(20,60,10)

> y=c(25,42,28,15,10)

> d=rep(x,y)

> n=length(y)

> v1=var(d)

> v1

[1] 142.7941

> v=((n-1)/n)\*v1

> v

[1] 114.2353

> sd=sqrt(v)

> sd

[1] 10.68809

> cv=(sd\*100)/mean(d)

> cv

[1] 30.32083

1. Find coefficient of variation for the following data

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Classes | 20-40 | 40-60 | 60-80 | 80-100 | 100-120 | 120-140 | 140-160 |
| Frequency | 8 | 11 | 15 | 24 | 16 | 14 | 12 |

ANS. > x=seq(20,140,20)

> y=c(8,11,15,24,16,14,12)

> d=rep(x,y)

> n=length(y)

> v1

[1] 142.7941

> v1=var(d)

> v1

[1] 1241.98

> v=((n-1)/n)\*v1

> v

[1] 1064.554

> sd=sqrt(v)

> sd

[1] 32.62751

> cv=(sd\*100)/mean(d)

> cv

[1] 38.93497