

```

In[273]:= (* generiramo naklju ne podatke *)
Tsr = 20;
Tamp = 5;
cas = Table[x, {x, 0, 2 Pi, 2 Pi / 20}];
T = N[Tsr + Tamp * Sin[cas]];

Trand = Table[x, {x, 0, 10, 10 / 20}];
For[i = 1, i ≤ 21, i++,
  Trand[[i]] = Tsr + Tamp * Sin[cas[[i]]] + (Random[] - 0.5) * Tamp / 1
]

N[cas]
N[Trand]

```

```

Out[279]= {0., 0.314159, 0.628319, 0.942478, 1.25664, 1.5708, 1.88496, 2.19911, 2.51327, 2.82743,
  3.14159, 3.45575, 3.76991, 4.08407, 4.39823, 4.71239, 5.02655, 5.34071, 5.65487, 5.96903, 6.28319}

```

```

Out[280]= {20.5219, 22.9812, 22.762, 23.9197, 25.55, 25.2612, 22.8588, 25.4041, 23.3315, 22.1611,
  20.0458, 16.4738, 18.4359, 14.2786, 17.3221, 16.0463, 17.722, 14.4968, 15.3096, 16.7971, 21.9946}

```

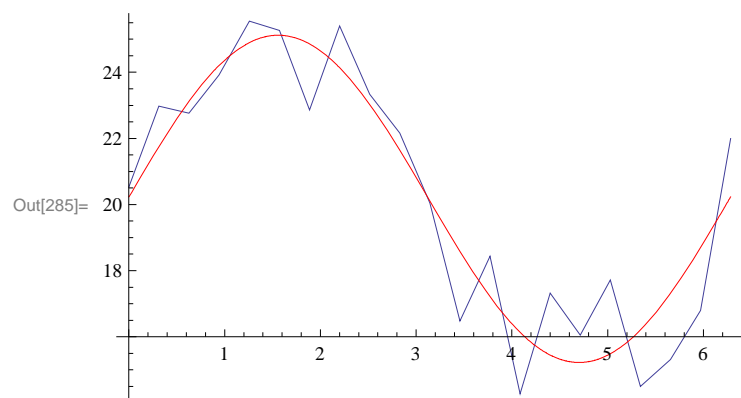
```
In[281]:= (* izra unam nelinearno regresijo *)
nonlin = NonlinearModelFit[Thread[{cas, Trand}], a + b * Sin[(t - fi)], {a, b, fi}, {t}]
nonlin["RSquared"]
nonlin["Function"]
nonlin["BestFit"]
Show[{ListLinePlot[Thread[{cas, Trand}]], Plot[nonlin["BestFit"], {t, 0, 2 * Pi}, PlotStyle -> Red]}]
```

```
Out[281]= FittedModel[ $20.1723 - 4.9479 \sin[3.15274 + t]$ ]
```

```
Out[282]= 0.995421
```

```
Out[283]=  $20.1723 - 4.9479 \sin[3.15274 + \#1]$  &
```

```
Out[284]=  $20.1723 - 4.9479 \sin[3.15274 + t]$ 
```



```
In[286]:= (* izra una vrednosti T po nelinearnem modelu pri za etnih asih *)
Tmodel = nonlin["Function"][cas]
```

```
Out[286]= {20.2275, 21.7537, 23.1251, 24.2074, 24.8948, 25.1199, 24.8607, 24.1426, 23.0358, 21.6488,
20.1172, 18.591, 17.2196, 16.1372, 15.4498, 15.2247, 15.4839, 16.2021, 17.3088, 18.6959, 20.2275}
```

```
In[292]:= (* izra una lnearno regresijo med Tmodel in Trand *)
lin = LinearModelFit[Thread[{Tmodel, Trand}], t, t]
lin["RSquared"]
Show[{ListPlot[Thread[{Tmodel, Trand}]], Plot[lin["BestFit"], {t, 15, 25}, PlotStyle -> Red]}]
```

```
Out[292]= FittedModel[
$$-1.30322 \times 10^{-11} + 1. t$$
]
```

```
Out[293]= 0.858205
```

