In[4]:=
```
DSolve[{y'[t] == Sin[t]^2 y[t], y[0] == 1}, y, t] // StandardForm
```

Out[4]//StandardForm=

$$\left\{\left\{y \to \text{Function}\left[\{t\}, e^{\frac{t}{2}-\frac{1}{4}\text{Sin}[2t]}\right]\right\}\right\}$$

In[30]:=
```
resNormal1X = Table[i*0.1, {i, 0, 60}];
resNormal1Y = Table[1, {i, 0, 60}];
For[i = 1, i < 61, i++,
 resNormal1Y[[i + 1]] = resNormal1Y[[i]] + 0.1* Sin[(i - 1) *0.1]^2 *resNormal1Y[[i]]]
```

In[33]:=
```
resNormal2X = Table[i*0.025, {i, 0, 240}];
resNormal2Y = Table[1, {i, 0, 240}];
For[i = 1, i < 241, i++,
 resNormal2Y[[i + 1]] = resNormal2Y[[i]] + 0.025* Sin[(i - 1) *0.025]^2 *resNormal2Y[[i]]]
```

In[37]:=
```
resNormal3X = Table[i*0.1, {i, 0, 60}];
resNormal3Y = Table[1, {i, 0, 60}];
For[i = 1, i < 61, i++,
 tn = (i - 1) *0.1;
 yn = resNormal3Y[[i]];
 k1 = 0.1*Sin[tn]^2 yn;
 k2 = 0.1*Sin[tn + 0.05]^2 (yn + 0.5*k1);
 k3 = 0.1*Sin[tn + 0.05]^2 (yn + 0.5*k2);
 k4 = 0.1*Sin[tn + 0.1]^2 (yn + k3);
 resNormal3Y[[i + 1]] = yn + (k1 + 2 k2 + 2 k3 + k4)/6
]
```

In[50]:=
```
Show[
 {ListPlot[Transpose[{resNormal3X, resNormal3Y}], PlotMarkers -> {"+", Large}, PlotStyle -> Red],
  ListPlot[Transpose[{resNormal2X, resNormal2Y}], PlotMarkers -> {"*"}, PlotStyle -> Black],
  ListPlot[Transpose[{resNormal1X, resNormal1Y}]],
  Plot[e^(t/2 - 1/4 Sin[2 t]), {t, 0, 6}]}, PlotRange -> All]
```

Out[50]=