

Needs["NonlinearRegression`"]

ConfidenceLevel::shdw :

Symbol ConfidenceLevel appears in multiple contexts {HypothesisTesting`, Global`}; definitions in context HypothesisTesting` may shadow or be shadowed by other definitions.

NonlinearRegress::shdw :

Symbol NonlinearRegress appears in multiple contexts {NonlinearRegression`, Global`}; definitions in context NonlinearRegression` may shadow or be shadowed by other definitions.

```
A = Transpose[{{3.775, 5.010, 6.631, 7.917, 8.823,  
               5.816, 9.562, 14.920, 4.488, 12.437, 16.446, 22.362, 34.743},  
               {0.41, 1.48, 2.5, 3.26, 3.70, 2.04, 3.91, 5.29, 1.104, 4.85, 5.6, 6.06, 6.37}}]
```

```
{ {3.775, 0.41}, {5.01, 1.48}, {6.631, 2.5}, {7.917, 3.26},  
  {8.823, 3.7}, {5.816, 2.04}, {9.562, 3.91}, {14.92, 5.29}, {4.488, 1.104},  
  {12.437, 4.85}, {16.446, 5.6}, {22.362, 6.06}, {34.743, 6.37} }
```

```
Export["C:\\IRE02.dat", Transpose[Join[Transpose[A], {Table[0.05, {i, Length[A]}]}]]]
```

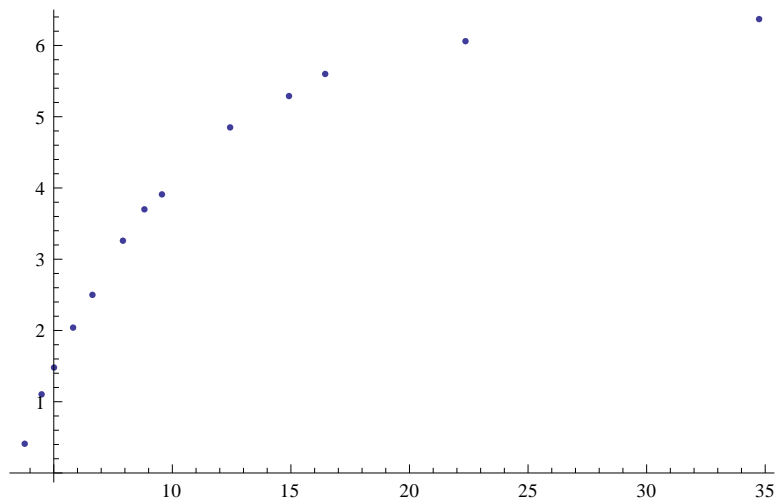
C:\\IRE02.dat

```
Export["C:\\IRE02b.dat", Transpose[  
  Join[Transpose[A], {Table[0.05, {i, Length[A]}], Table[0.05, {i, Length[A]}]}]]]
```

C:\\IRE02b.dat

"C:\\IRE02b.dat"

```
AP = ListPlot[A]
```



```
NonlinearRegress[A, m (1 - 2 Exp[-x / t]), {m, t}, x, ConfidenceLevel -> .95]
```

```
{BestFitParameters -> {m -> 6.10565, t -> 5.27542},
```

| | Estimate | Asymptotic SE | CI |
|-----------------------|----------|---------------|--------------------|
| ParameterCITable -> m | 6.10565 | 0.0928267 | {5.90134, 6.30996} |
| t | 5.27542 | 0.0936383 | {5.06933, 5.48152} |

```
EstimatedVariance -> 0.030266,
```

| | DF | SumOfSq | MeanSq |
|----------------------|----|----------|-----------|
| Model | 2 | 213.429 | 106.714 |
| ANOVA Table -> Error | 11 | 0.332926 | 0.030266, |
| Uncorrected Total | 13 | 213.762 | |
| Corrected Total | 12 | 46.905 | |

```
AsymptoticCorrelationMatrix ->  $\begin{pmatrix} 1. & 0.621684 \\ 0.621684 & 1. \end{pmatrix},$ 
```

| | Curvature |
|------------------------------------|------------|
| FitCurvatureTable -> Max Intrinsic | 0.00975343 |
| Max Parameter-Effects | 0.0306833 |
| 95. % Confidence Region | 0.50111 |

```
(5.901341457941188 + 6.30996163835896) / 2
```

```
6.10565
```

```
FFA = FindFit[A, {m (1 - 2 Exp[-x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

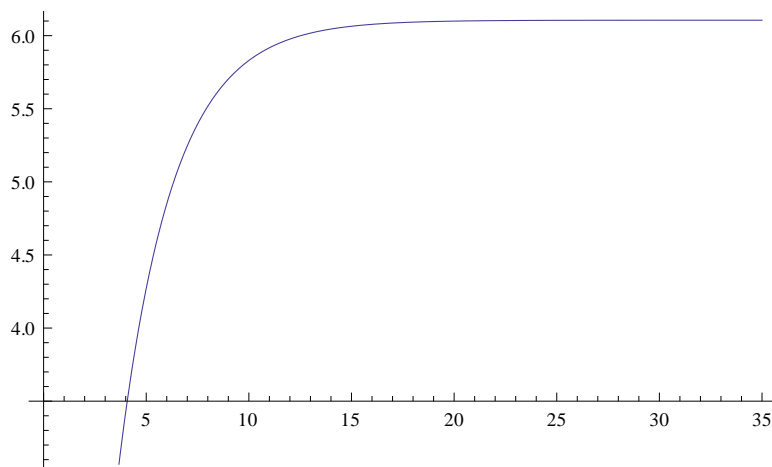
```
FindFit::eit :
```

The algorithm does not converge to the tolerance of $4.806217383937354 \times 10^{-6}$ in 500 iterations.

The best estimated solution, with feasibility residual, KKT residual or complementary residual of $\{0.0000199457, 6.80251 \times 10^{-7}, 5.59289 \times 10^{-6}\}$, is returned.

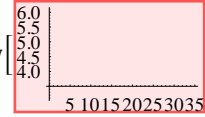
```
{m -> 6.10561, t -> 2.63769}
```

```
FA = Plot[m (1 - 2 Exp[-x / t]) /. FFA, {x, 0, 35}]
```

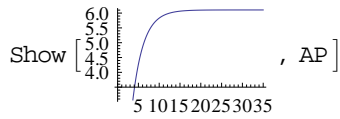


```
Show[FA, AP]
```

Show::gcomb : Could not combine the graphics objects in Show[



, AP]. >>



```
B = Transpose[{{2.8825, 4.921, 7.220, 7.807, 8.86, 9.927, 20.934, 33.112},
               {3.10, 3.99, 4.88, 4.93, 5.2, 5.29, 6.16, 6.31}}]
```

```
{ {2.8825, 3.1}, {4.921, 3.99}, {7.22, 4.88}, {7.807, 4.93},
  {8.86, 5.2}, {9.927, 5.29}, {20.934, 6.16}, {33.112, 6.31} }
```

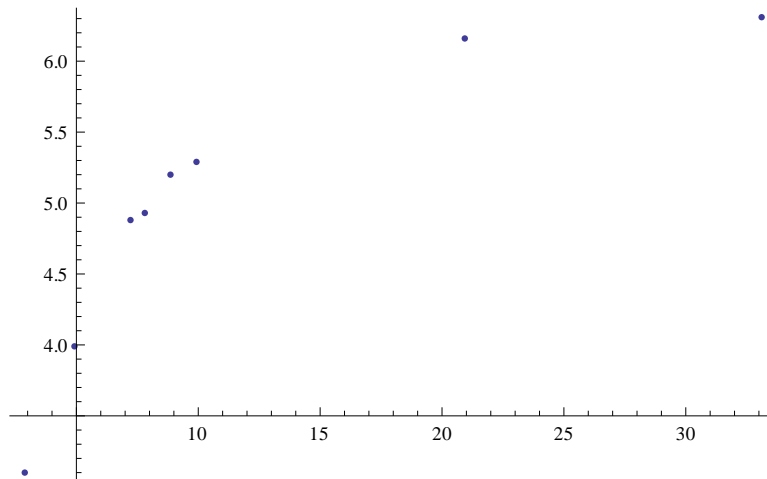
```
Export["C:\\SRE02.dat", Transpose[Append[Transpose[B], Table[0.05, {i, Length[B]}]]]]
```

C:\\SRE02.dat

```
Export["C:\\SRE02b.dat", Transpose[
  Join[Transpose[B], {Table[0.05, {i, Length[B]}], Table[0.05, {i, Length[B]}]}]]]
```

C:\\SRE02b.dat

```
BP = ListPlot[B]
```



```
NonlinearRegress[B, m (1 - Exp[-x / t]), {m, t}, x]
```

```
{BestFitParameters → {m → 6.20275, t → 4.71361},
```

| | | Estimate | Asymptotic SE | CI |
|--------------------|---|----------|---------------|--------------------|
| ParameterCITable → | m | 6.20275 | 0.100366 | {5.95717, 6.44834} |
| | t | 4.71361 | 0.226975 | {4.15822, 5.269} |

```
EstimatedVariance → 0.0199299,
```

| | | DF | SumOfSq | MeanSq |
|---------------|-------------------|----|----------|-----------|
| ANOVA Table → | Model | 2 | 206.316 | 103.158 |
| | Error | 6 | 0.119579 | 0.0199299 |
| | Uncorrected Total | 8 | 206.435 | |
| | Corrected Total | 7 | 7.83275 | |

```
AsymptoticCorrelationMatrix →  $\begin{pmatrix} 1. & 0.794386 \\ 0.794386 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|---------------------|-------------------------|-----------|
| FitCurvatureTable → | Max Intrinsic | 0.0467384 |
| | Max Parameter-Effects | 0.0393828 |
| | 95. % Confidence Region | 0.440942 |

```
4.7136 - 4.158221509069886
```

```
0.555378
```

```
FFB = FindFit[B, {m (1 - Exp[-x / t])}, {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}, {m, t}, x]
```

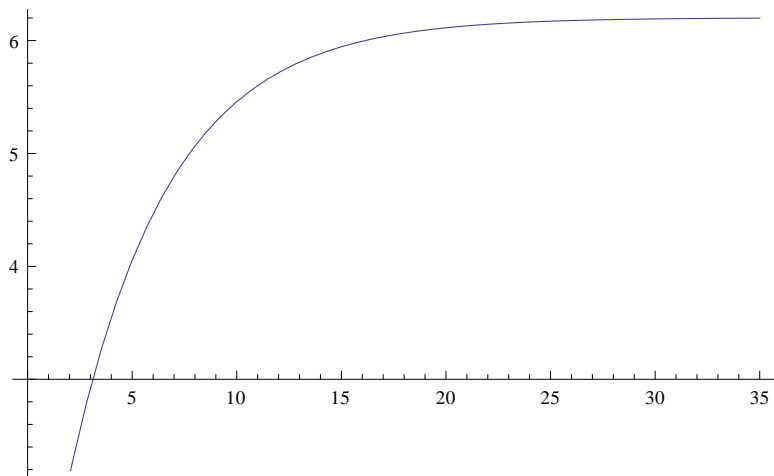
FindFit::eit :

The algorithm does not converge to the tolerance of $4.806217383937354 \times 10^{-6}$ in 500 iterations.

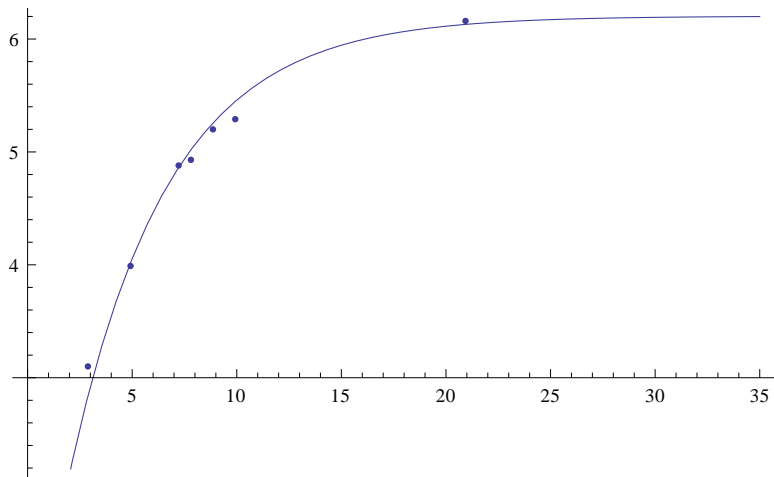
The best estimated solution, with feasibility residual, KKT residual or complementary residual of $\{0.0000445421, 3.0439 \times 10^{-6}, 0.0000153363\}$, is returned.

```
{m → 6.20269, t → 4.71348}
```

```
FB = Plot[m (1 - Exp[-x / t]) /. FFB, {x, 0, 35}]
```



```
Show[FB, BP]
```



```
F = Transpose[
  {0.5 {2.022, 2.84, 4.3, 6.985, 8.713, 12.098}, {4.29, 3.11, 2.65, 1.57, 1.15, 0.63}}]
```

```
{1.011, 4.29}, {1.42, 3.11}, {2.15, 2.65}, {3.4925, 1.57}, {4.3565, 1.15}, {6.049, 0.63}}
```

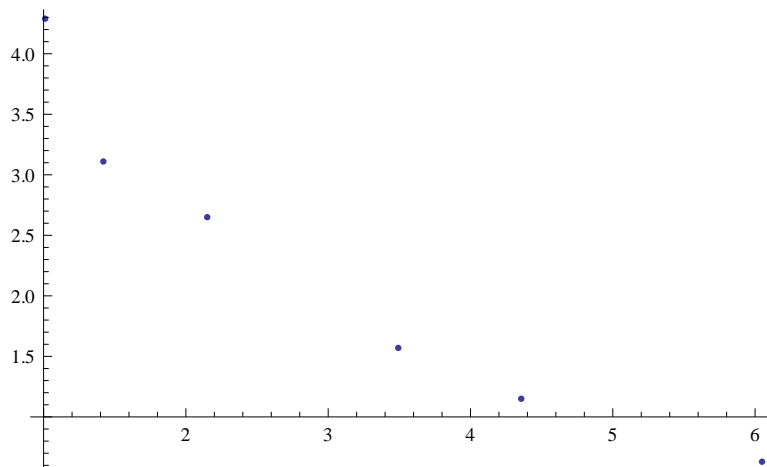
```
Export["C:\SPE02.dat", Transpose[Append[Transpose[F], Table[0.05, {i, Length[F]}]]]]
```

```
C:\SPE02.dat
```

```
Export["C:\\SPE02b.dat", Transpose[
  Join[Transpose[F], {Table[0.05, {i, Length[F]}], Table[0.05, {i, Length[F]}]}]]]
```

```
C:\\SPE02b.dat
```

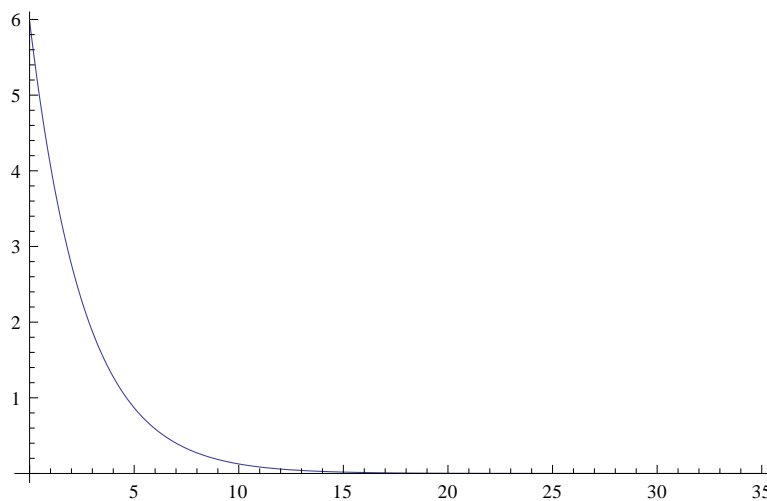
```
FP = ListPlot[F]
```



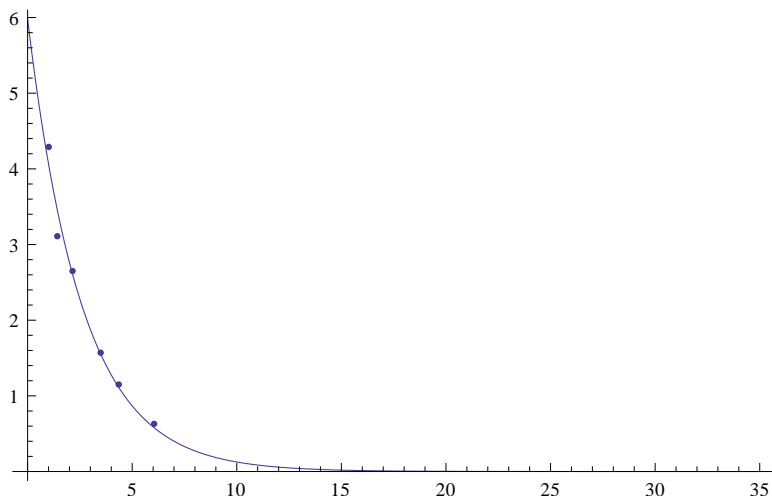
```
FFF = FindFit[F, {m (Exp[-2 x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

```
{m → 5.9801, t → 5.17891}
```

```
FF = Plot[m (Exp[-2 x / t]) /. FFF, {x, 0, 35}, PlotRange → Full]
```



```
Show[FF, FP]
```



```
G = Transpose[{0.5 {5.553, 3.635, 10.686, 14.576, 18.98, 25.62, 37.46, 45.33, 52.4, 60.15},
{3.695, 4.19, 2.893, 2.379, 1.877, 1.327, 0.71, 0.446, 0.299, 0.203}}]
```

```
{ {2.7765, 3.695}, {1.8175, 4.19}, {5.343, 2.893}, {7.288, 2.379}, {9.49, 1.877},
{12.81, 1.327}, {18.73, 0.71}, {22.665, 0.446}, {26.2, 0.299}, {30.075, 0.203}}
```

```
Export["C:\\SPE0x.dat", Transpose[Append[Transpose[G], Table[0.05, {i, Length[G]}]]]]
```

C:\\SPE0x.dat

```
Export["C:\\SPE0xb.dat", Transpose[
Join[Transpose[G], {Table[0.05, {i, Length[G]}], Table[0.05, {i, Length[G]}]}]]]
```

C:\\SPE0xb.dat

```
NonlinearRegress[P, m Exp[-2 x / t], {m, t}, x]
```

```
{BestFitParameters -> {m -> 2.11027, t -> 226.629},
```

| | | Estimate | Asymptotic SE | CI |
|---------------------|---|----------|---------------|---------------------|
| ParameterCITable -> | m | 2.11027 | 0.0526347 | {1.96414, 2.25641}, |
| | t | 226.629 | 26.9216 | {151.883, 301.375} |

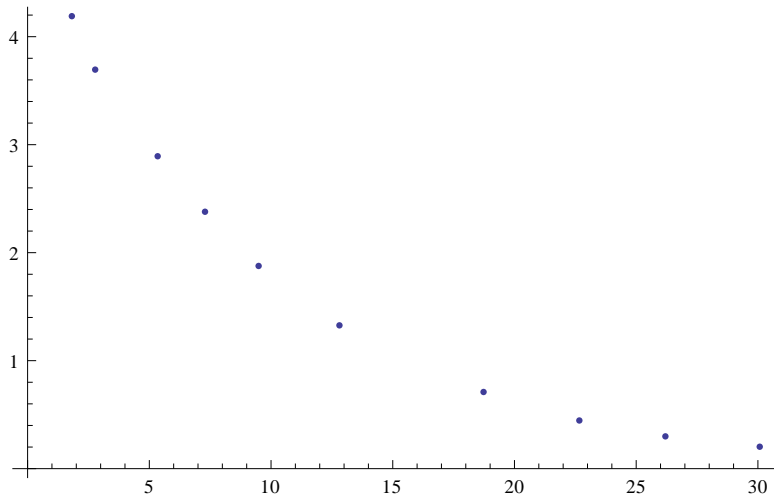
```
EstimatedVariance -> 0.00826723,
```

| | Model | DF | SumOfSq | MeanSq |
|---------------|-------------------|----|-----------|-------------|
| ANOVATable -> | Error | 4 | 0.0330689 | 0.00826723, |
| | Uncorrected Total | 6 | 19.6263 | |
| | Corrected Total | 5 | 0.797027 | |

```
AsymptoticCorrelationMatrix ->  $\begin{pmatrix} 1. & -0.567234 \\ -0.567234 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|----------------------|-------------------------|-----------|
| FitCurvatureTable -> | Max Intrinsic | 0.0175911 |
| | Max Parameter-Effects | 0.362073 |
| | 95. % Confidence Region | 0.379478 |

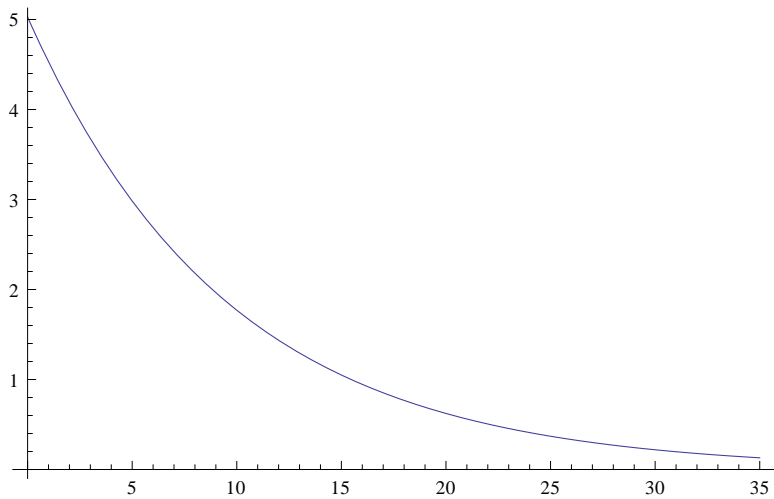
```
GP = ListPlot[G]
```

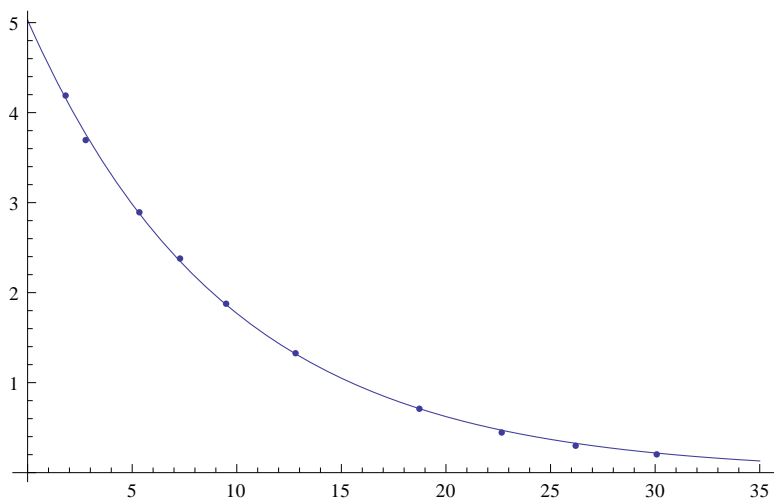


```
FFG = FindFit[G, {m ( Exp[-2 x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

```
{m → 5.0274, t → 19.1526}
```

```
Show[GP, Plot[m ( Exp[-2 x / t]) /. FFG, {x, 0, 35}]]
```





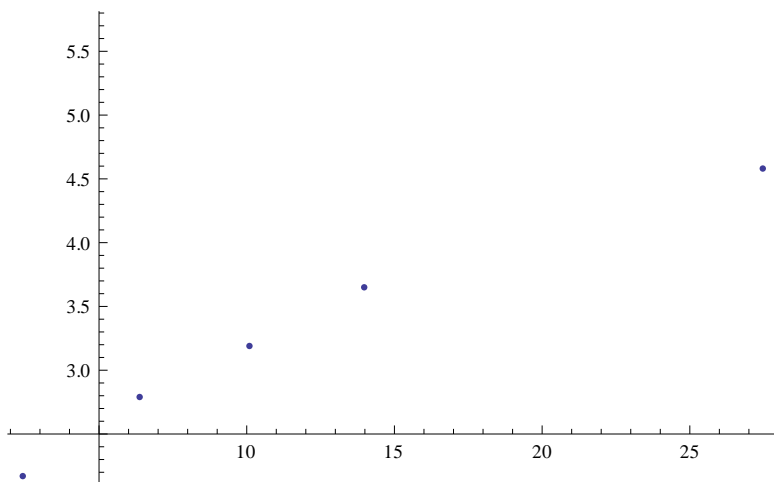
```
H = Transpose[
  {{2.418, 6.375, 10.092, 13.977, 27.47, 64.65}, {2.17, 2.79, 3.19, 3.65, 4.581, 5.74}}]

```

```
{{2.418, 2.17}, {6.375, 2.79}, {10.092, 3.19}, {13.977, 3.65}, {27.47, 4.581}, {64.65, 5.74}}
Export["C:\\SRE0x.dat", Transpose[Append[Transpose[H], Table[0.05, {i, Length[H]}]]]]
C:\\SRE0x.dat

Export["C:\\SRE0xb.dat", Transpose[
  Join[Transpose[H], {Table[0.05, {i, Length[H]}], Table[0.05, {i, Length[H]}]]]]]
C:\\SRE0xb.dat

NonlinearRegress[P, m Exp[-2 x / t], {m, t}, x]
HP = ListPlot[H]
```



```
NonlinearRegress[H, m (1 - Exp[-x / t]), {m, t}, x]
```

```
{BestFitParameters → {m → 5.27226, t → 9.63544},
```

| | | Estimate | Asymptotic SE | CI |
|--------------------|---|----------|---------------|--------------------|
| ParameterCITable → | m | 5.27226 | 0.535786 | {3.78468, 6.75984} |
| | t | 9.63544 | 2.65335 | {2.26856, 17.0023} |

```
EstimatedVariance → 0.408519,
```

| | | DF | SumOfSq | MeanSq |
|---------------|-------------------|----|---------|-----------|
| ANOVA Table → | Model | 2 | 88.2907 | 44.1453 |
| | Error | 4 | 1.63408 | 0.408519, |
| | Uncorrected Total | 6 | 89.9248 | |
| | Corrected Total | 5 | 8.36832 | |

```
AsymptoticCorrelationMatrix →  $\begin{pmatrix} 1. & 0.742946 \\ 0.742946 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|---------------------|-------------------------|-----------|
| FitCurvatureTable → | Max Intrinsic | 0.26555 |
| | Max Parameter-Effects | 0.335222 |
| | 95. % Confidence Region | 0.379478 |

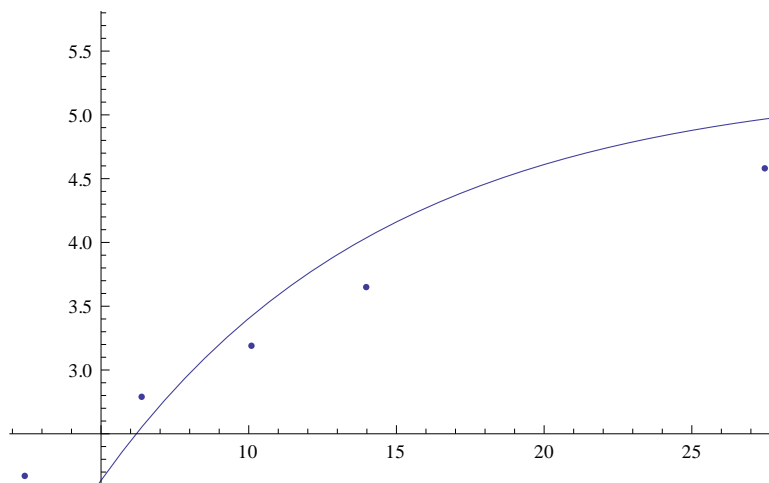
```
9.635440000097441 - 2.2685636900144095`
```

```
7.36688
```

```
FFH = FindFit[H, {m (1 - Exp[-x / t])}, {m, t}, x]
```

```
{m → 5.27226, t → 9.63544}
```

```
Show[HP, Plot[m (1 - Exp[-x / t]) /. FFH, {x, 0, 35}, PlotRange → Full]]
```



```
J = Transpose[{{19.762, 26.381, 22.453, 37.537, 33.946, 30.25, 43.47, 55.43, 89.45},  
{1.78, 2.80, 2.19, 3.92, 3.62, 3.24, 4.51, 5.06, 5.73}}]
```

```
{{19.762, 1.78}, {26.381, 2.8}, {22.453, 2.19}, {37.537, 3.92},  
{33.946, 3.62}, {30.25, 3.24}, {43.47, 4.51}, {55.43, 5.06}, {89.45, 5.73}}
```

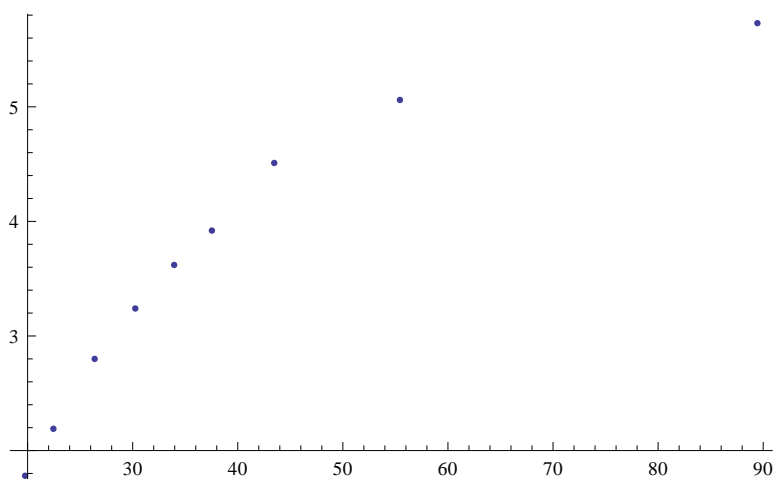
```
Export["C:\\IRE0x.dat", Transpose[Append[Transpose[J], Table[0.05, {i, Length[J]}]]]]
```

```
C:\\IRE0x.dat
```

```
Export["C:\\IRE0xb.dat", Transpose[
  Join[Transpose[J], {Table[0.05, {i, Length[J]}], Table[0.05, {i, Length[J]}]]]]]
```

```
C:\\IRE0xb.dat
```

```
JP = ListPlot[J]
```



```
FFJ = FindFit[J, {m (1 - 2 Exp[-x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

```
{m → 5.70446, t → 19.3354}
```

```
NonlinearRegress[J, m (1 - 2 Exp[-x / t]), {m, t}, x]
```

```
{BestFitParameters → {m → 5.70454, t → 19.3357},
```

| | | Estimate | Asymptotic SE | CI |
|----------------------|--|----------|---------------|--------------------|
| ParameterCITable → m | | 5.70454 | 0.092729 | {5.48527, 5.92381} |
| t | | 19.3357 | 0.36729 | {18.4672, 20.2042} |

```
EstimatedVariance → 0.0136681,
```

| | | DF | SumOfSq | MeanSq |
|---------------------|--|----|----------|-----------|
| ANOVA Table → Model | | 2 | 133.454 | 66.7269 |
| Error | | 7 | 0.095677 | 0.0136681 |
| Uncorrected Total | | 9 | 133.55 | |
| Corrected Total | | 8 | 13.647 | |

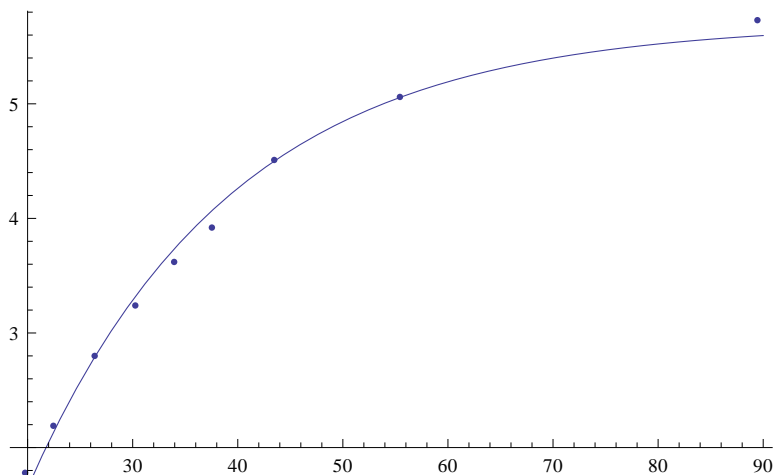
```
AsymptoticCorrelationMatrix →  $\begin{pmatrix} 1. & 0.782557 \\ 0.782557 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|-----------------------------------|--|------------|
| FitCurvatureTable → Max Intrinsic | | 0.00920316 |
| Max Parameter-Effects | | 0.0508245 |
| 95. % Confidence Region | | 0.459441 |

```
(19.335671403814917 - 18.467168377086722)
```

```
0.868503
```

```
Show[JP, Plot[m (1 - 2 Exp[-x / t]) /. FFJ, {x, 10, 90}, PlotRange → Full]]
```



```
K = Transpose[{{6.072, 9.047, 7.693, 10.995, 12.988, 14.955, 20.28, 31.318, 66.19},
               {0.62, 1.82, 1.22, 2.45, 3.045, 3.44, 4.40, 5.33, 5.91}}]
```

```
{ {6.072, 0.62}, {9.047, 1.82}, {7.693, 1.22}, {10.995, 2.45},
  {12.988, 3.045}, {14.955, 3.44}, {20.28, 4.4}, {31.318, 5.33}, {66.19, 5.91} }
```

```
Export["C:\\IRE01.dat", Transpose[Append[Transpose[K], Table[0.05, {i, Length[K]}]]]]
```

```
C:\\IRE01.dat
```

```
Export["C:\\IRE01b.dat", Transpose[
  Join[Transpose[K], {Table[0.05, {i, Length[K]}], Table[0.05, {i, Length[K]}]}]]]
```

```
C:\\IRE01b.dat
```

```
NonlinearRegress[K, m (1 - 2 Exp[-x / t]), {m, t}, x, ConfidenceLevel -> .6827]
```

```
{BestFitParameters -> {m -> 5.54784, t -> 8.36},
```

| | | Estimate | Asymptotic SE | CI |
|---------------------|---|----------|---------------|---------------------|
| ParameterCITable -> | m | 5.54784 | 0.168287 | {5.36664, 5.72904}, |
| | t | 8.36 | 0.279064 | {8.05952, 8.66048} |

```
EstimatedVariance -> 0.0670196,
```

| | | DF | SumOfSq | MeanSq |
|----------------|-------------------|----|----------|------------|
| ANOVA Table -> | Model | 2 | 114.521 | 57.2606 |
| | Error | 7 | 0.469137 | 0.0670196, |
| | Uncorrected Total | 9 | 114.99 | |
| | Corrected Total | 8 | 26.4109 | |

```
AsymptoticCorrelationMatrix ->  $\begin{pmatrix} 1. & 0.603315 \\ 0.603315 & 1. \end{pmatrix},$ 
```

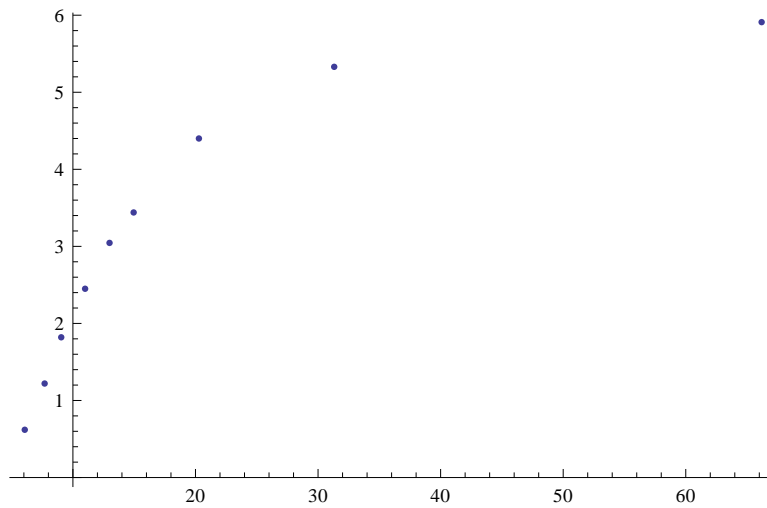
| | | Curvature |
|----------------------|---------------------------|-----------|
| FitCurvatureTable -> | Max Intrinsic | 0.0197504 |
| | Max Parameter-Effects | 0.0577719 |
| | 68.27 % Confidence Region | 0.857956 |

```
(5.729043614424136 - 5.547842876536437)
```

```
0.181201
```

```
KP = ListPlot[K]
```

```
ListPlot[K]
```



```
FFK = FindFit[K, {m (1 - 2 Exp[-x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

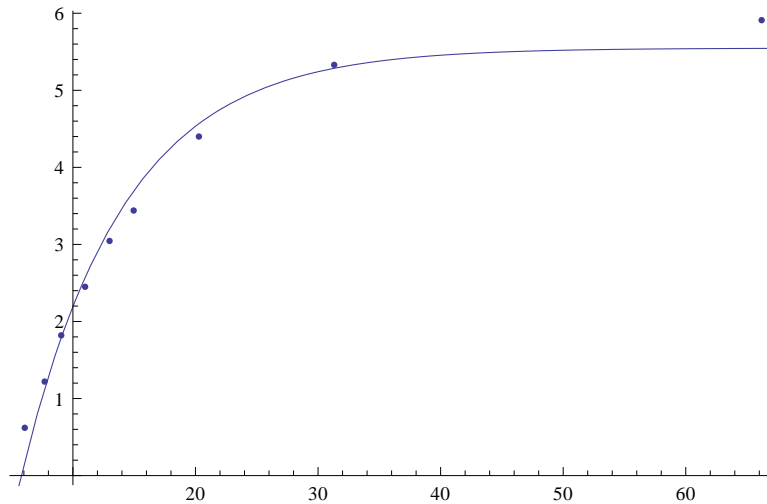
```
FindFit::eit :
```

The algorithm does not converge to the tolerance of $4.806217383937354 \times 10^{-6}$ in 500 iterations.

The best estimated solution, with feasibility residual, KKT residual or complementary residual of $\{0.0000200426, 6.72046 \times 10^{-7}, 9.65822 \times 10^{-6}\}$, is returned.

```
{m → 5.5478, t → 8.35994}
```

```
Show[KP, FK = Plot[m (1 - 2 Exp[-x / t]) /. FFK, {x, 0, 70}, PlotRange → Full]]
```



```
L = Transpose[{{1.6793, 3.3312, 4.733, 7.663, 11.862, 18.981, 50.17},
               {2.56, 2.83, 3.21, 3.83, 4.43, 5.09, 5.87}}]
```

```
{{1.6793, 2.56}, {3.3312, 2.83}, {4.733, 3.21},
 {7.663, 3.83}, {11.862, 4.43}, {18.981, 5.09}, {50.17, 5.87}}
```

```
Export["C:\\SRE01.dat", Transpose[Append[Transpose[L], Table[0.05, {i, Length[L]}]]]]
```

```
C:\\SRE01.dat
```

```
Export["C:\\SRE01b.dat", Transpose[
  Join[Transpose[L], {Table[0.05, {i, Length[L]}], Table[0.05, {i, Length[L]}]]]]
```

```
C:\\SRE01b.dat
```

```
NonlinearRegress[L, m (1 - Exp[-x / t]), {m, t}, x]
```

```
{BestFitParameters -> {m -> 5.28091, t -> 4.66211},
```

| | | Estimate | Asymptotic SE | CI |
|---------------------|---|----------|---------------|---------------------|
| ParameterCITable -> | m | 5.28091 | 0.403659 | {4.24327, 6.31855}, |
| | t | 4.66211 | 1.07257 | {1.90498, 7.41924} |

```
EstimatedVariance -> 0.340451,
```

| | | DF | SumOfSq | MeanSq |
|----------------|-------------------|----|---------|-----------|
| Model | | 2 | 117.823 | 58.9116 |
| ANOVA Table -> | Error | 5 | 1.70226 | 0.340451, |
| | Uncorrected Total | 7 | 119.525 | |
| | Corrected Total | 6 | 8.96077 | |

```
AsymptoticCorrelationMatrix ->  $\begin{pmatrix} 1. & 0.710949 \\ 0.710949 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|----------------------|-------------------------|-----------|
| FitCurvatureTable -> | Max Intrinsic | 0.238802 |
| | Max Parameter-Effects | 0.285512 |
| | 95. % Confidence Region | 0.415725 |

```
4.662109482596877 - 7.419237638723131`
```

```
-2.75713
```

```
FFL = FindFit[L, {m (1 - Exp[-x / t]), {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}}, {m, t}, x]
```

```
FindFit::eit :
```

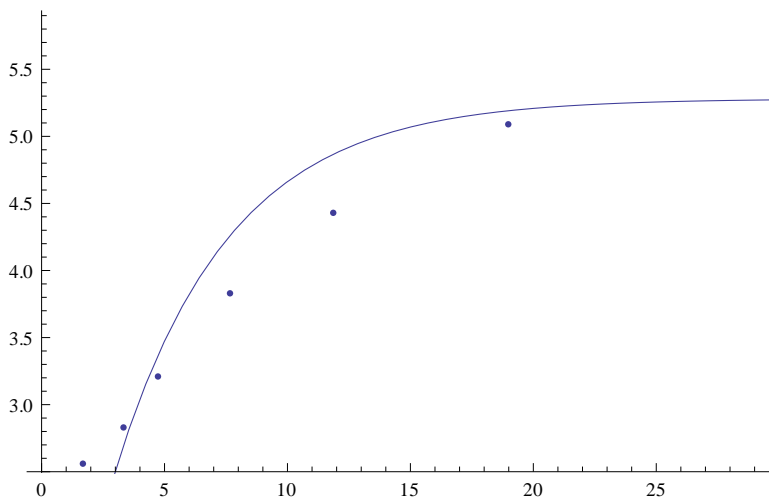
The algorithm does not converge to the tolerance of $4.806217383937354 \times 10^{-6}$ in 500 iterations.

The best estimated solution, with feasibility residual, KKT residual or complementary

residual of $\{0.0000106627, 6.85956 \times 10^{-7}, 4.71544 \times 10^{-6}\}$, is returned.

```
{m → 5.28086, t → 4.66199}
```

```
Show[ListPlot[L], Plot[m (1 - Exp[-x / t]) /. FFL, {x, 0, 35}, PlotRange → Full]]
```



```
M = Transpose[{0.5 {4.881, 6.488, 9.148, 10.897, 14.265, 17.384, 22.153, 32.521},
               {3.03, 2.66, 2.09, 1.85, 1.35, 0.99, 0.622, 0.209}}]
```

```
{ {2.4405, 3.03}, {3.244, 2.66}, {4.574, 2.09}, {5.4485, 1.85},
  {7.1325, 1.35}, {8.692, 0.99}, {11.0765, 0.622}, {16.2605, 0.209} }
```

```
Export["C:\\SPE01.dat", Transpose[Append[Transpose[M], Table[0.05, {i, Length[M]}]]]]
```

```
C:\\SPE01.dat
```

```
NonlinearRegress[M, m Exp[-2 x / t], {m, t}, x]
```

```
{BestFitParameters → {m → 4.73241, t → 11.2133},
```

| | | Estimate | Asymptotic SE | CI |
|----------------------|---|----------|---------------|--------------------|
| ParameterCITable → m | | 4.73241 | 0.0809246 | {4.5344, 4.93043} |
| | t | 11.2133 | 0.238696 | {10.6293, 11.7974} |

```
EstimatedVariance → 0.00153012,
```

| | | DF | SumOfSq | MeanSq |
|---------------------|--|----|------------|------------|
| ANOVA Table → Model | | 2 | 27.2711 | 13.6355 |
| Error | | 6 | 0.00918072 | 0.00153012 |
| Uncorrected Total | | 8 | 27.2803 | |
| Corrected Total | | 7 | 6.79706 | |

```
AsymptoticCorrelationMatrix →  $\begin{pmatrix} 1. & -0.898956 \\ -0.898956 & 1. \end{pmatrix},$ 
```

| | | Curvature |
|-----------------------------------|--|-----------|
| FitCurvatureTable → Max Intrinsic | | 0.0195123 |
| Max Parameter-Effects | | 0.166056 |
| 95. % Confidence Region | | 0.440942 |

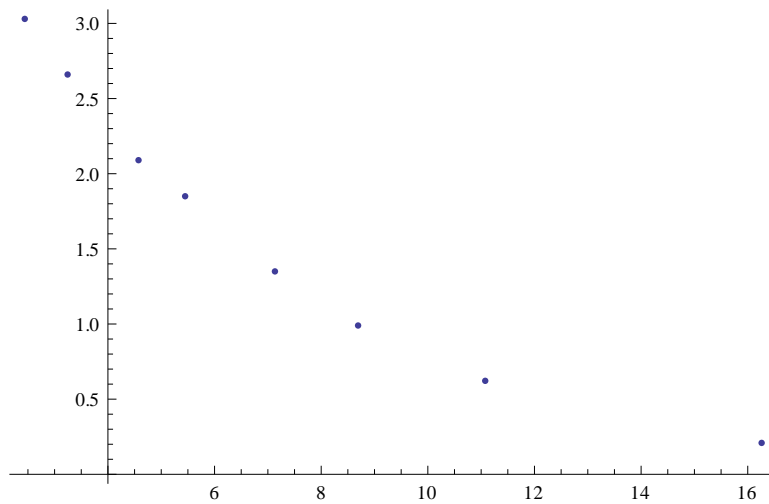
```
4.732412905944776 - 4.93042836355717^
```

```
-0.198015
```

```
Export["C:\\SPE01b.dat", Transpose[
  Join[Transpose[M], {Table[0.05, {i, Length[M]}], Table[0.05, {i, Length[M]}]}]]]
```

```
C:\\SPE01b.dat
```

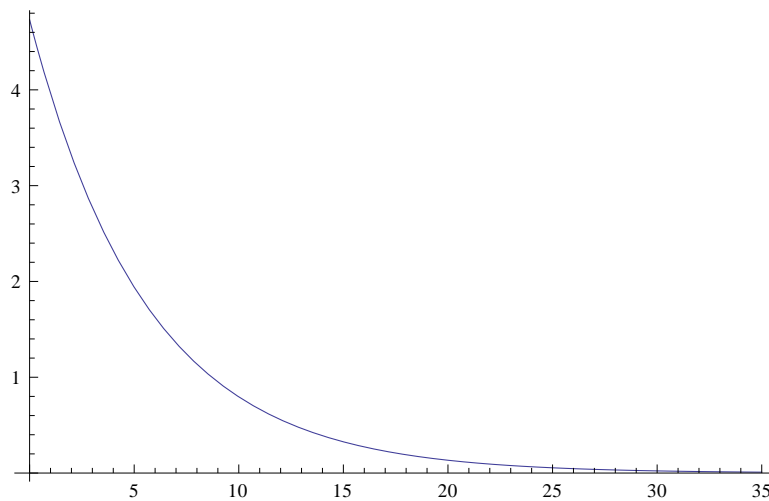
```
MP = ListPlot[M]
```



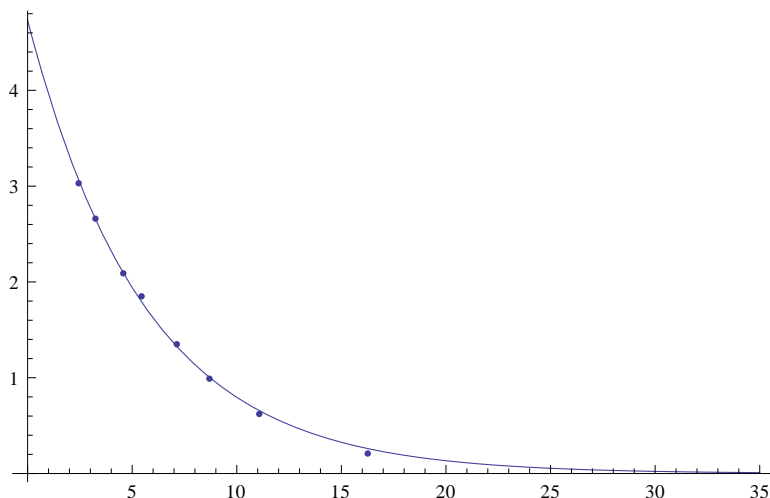
```
FFM = FindFit[M, {m ( Exp[-2 x / t])}, {0 ≤ m ≤ 10, 0 ≤ t ≤ 50}, {m, t}, x]
```

```
{m → 4.73239, t → 11.2134}
```

```
FM = Plot[m ( Exp[-2 x / t]) /. FFM, {x, 0, 35}, PlotRange → Full]
```



```
Show[FM, MP]
```

```
P = Transpose[{0.5 {3.542, 4.716, 8.461, 25.31, 98.75, 127.33},
  {2.12, 2.000, 1.975, 1.974, 1.45, 1.11}}]
```

```
{ {1.771, 2.12}, {2.358, 2.}, {4.2305, 1.975},
  {12.655, 1.974}, {49.375, 1.45}, {63.665, 1.11} }
```

```
Export["C:\\SPE0w.dat", Transpose[Append[Transpose[P], Table[0.05, {i, Length[P]}]]]]
```

```
C:\\SPE0w.dat
```

```
Export["C:\\SPE0wb.dat", Transpose[
  Join[Transpose[P], {Table[0.05, {i, Length[P]}], Table[0.05, {i, Length[P]}]}]]]
```

```
C:\\SPE0wb.dat
```

```
NonlinearRegress[P, m Exp[-2 x / t], {m, t}, x]
```

```
{BestFitParameters -> {m -> 2.11027, t -> 226.629},
```

| | | Estimate | Asymptotic SE | CI |
|---------------------|---|----------|---------------|---------------------|
| ParameterCITable -> | m | 2.11027 | 0.0526347 | {1.96414, 2.25641}, |
| | t | 226.629 | 26.9216 | {151.883, 301.375} |

```
EstimatedVariance -> 0.00826723,
```

| | Model | DF | SumOfSq | MeanSq |
|---------------|-------------------|----|-----------|-------------|
| ANOVATable -> | Error | 4 | 0.0330689 | 0.00826723, |
| | Uncorrected Total | 6 | 19.6263 | |
| | Corrected Total | 5 | 0.797027 | |

```
AsymptoticCorrelationMatrix ->  $\begin{pmatrix} 1. & -0.567234 \\ -0.567234 & 1. \end{pmatrix},$ 
```

| | Curvature |
|------------------------------------|-----------|
| FitCurvatureTable -> Max Intrinsic | 0.0175911 |
| Max Parameter-Effects | 0.362073 |
| 95. % Confidence Region | 0.379478 |

226.62896607256073 - 301.3752393589258`

-74.7463

```
FFP = FindFit[P, {m (Exp[-2 x / t]), {0 ≤ m ≤ 10}}, {m, t}, x]
```

```
{m → 2.11027, t → 226.63}
```

```
Show[ListPlot[P, PlotRange → Full],
```

```
Plot[m (Exp[-2 x / t]) /. FFP, {x, 0, 70}, PlotRange → Full]]
```

