

In[2]:= **listx = Table[i, {i, 10}]**

Out[2]= {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

In[9]:= **listy = Table[i + 2 + 4 (Random[] - 1 / 2), {i, 10}]**

Out[9]= {4.95983, 2.14408, 5.10741, 6.10734, 8.50116, 7.21738, 8.86939, 8.17388, 9.40686, 10.0686}

In[10]:= **Correlation[listx, listy]**

Out[10]= 0.888707

In[13]:= **a = (Mean[listx * listy] - Mean[listx] Mean[listy]) / (Mean[listx^2] - Mean[listx]^2)**

Out[13]= 0.722138

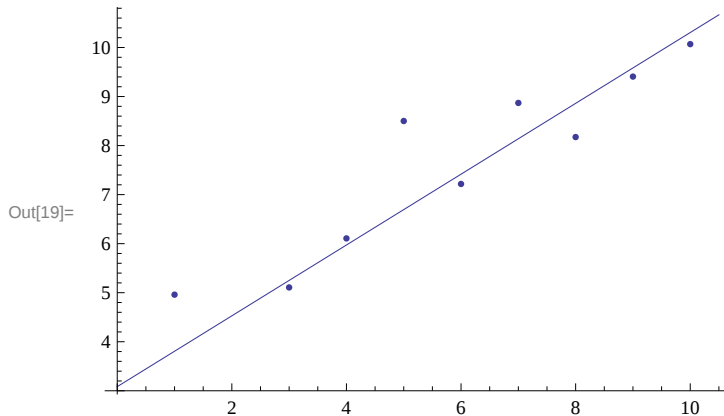
In[16]:= **b = Mean[listy] - a Mean[listx]**

Out[16]= 3.08383

In[17]:= **Fit[listy, {1, x}, x] (*same thing*)**

Out[17]= 3.08383 + 0.722138 x

In[19]:= **Show[Plot[a x + b, {x, 0, 10.5}], ListPlot[listy]]**



In[20]:= **eqb = {Mean[listy] - A Mean[listx] - B == 0}**

Out[20]= $\left\{7.05559 - \frac{11 A}{2} - B == 0\right\}$

In[21]:= **eqa = {Mean[listy * listx] - A Mean[listx^2] - B ==
A / (A^2 + 1) (Mean[listy^2] + A^2 Mean[listx^2] + B^2 -
2 A Mean[listy * listx] - 2 B Mean[listy] + 2 A B Mean[listx]) }**

Out[21]= $\left\{44.7634 - \frac{77 A}{2} - B == \frac{1}{1 + A^2} A \left(55.2286 - 89.5268 A + \frac{77 A^2}{2} - 14.1112 B + 11 A B + B^2\right)\right\}$

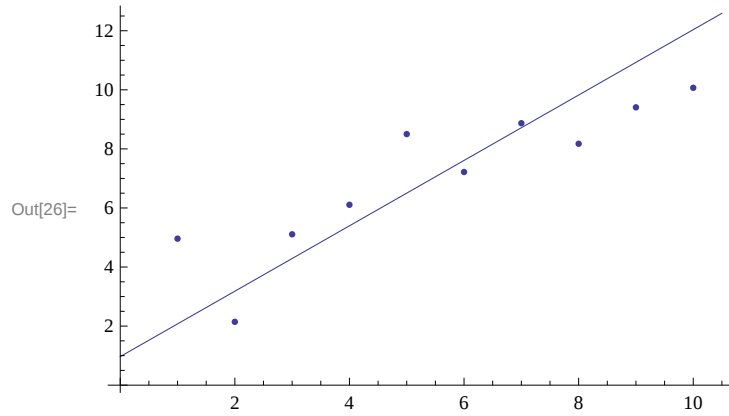
In[22]:= **eqs = Join[eqa, eqb]**

Out[22]= $\left\{44.7634 - \frac{77 A}{2} - B == \frac{1}{1 + A^2} A \left(55.2286 - 89.5268 A + \frac{77 A^2}{2} - 14.1112 B + 11 A B + B^2\right),\right.$
 $\left.7.05559 - \frac{11 A}{2} - B == 0\right\}$

In[23]:= **Solve[eqs, {A, B}]**

Out[23]= $\{ \{B \rightarrow 0.967184, A \rightarrow 1.10698\}, \{B \rightarrow 6.79159 - 4.99102 i, A \rightarrow 0.0480003 + 0.907458 i\}, \{B \rightarrow 6.79159 + 4.99102 i, A \rightarrow 0.0480003 - 0.907458 i\} \}$

In[26]:= **Show[Plot[{A x + B} /. {B → 0.967184, A → 1.10698}, {x, 0, 10.5}], ListPlot[listy]]**



In[28]:=