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In[1]:= a = 1.3564547206166
Out[1]= 1.3564547206166

In[2]:= % - 1
Out[2]= 0.3564547206166

In[3]:= 1 / %
Out[3]= 2.805405405405172

In[4]:= % - 2
Out[4]= 0.805405405405172

In[5]:= 1 / %
Out[5]= 1.2416107382553934

In[6]:= % - 1
Out[6]= 0.24161073825539336

In[7]:= 1 / %
Out[7]= 4.138888888882725

In[8]:= % - 4
Out[8]= 0.13888888888272533

In[9]:= 1 / %
Out[9]= 7.200000000319519

In[10]:= % - 7
Out[10]= 0.2000000003195188

In[11]:= 1 / %
Out[11]= 4.99999999201203

In[12]:= ContinuedFraction[a]
Out[12]= {1, 2, 1, 4, 7, 4, 1}

In[13]:= Pi
Out[13]=  $\pi$ 

In[14]:= N[%]
Out[14]= 3.141592653589793
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In[15]:= **ContinuedFraction**[%]

{3, 7, 15, 1, 292, 1, 1, 1, 2, 1, 3, 1, 14}

In[16]:= **Convergents** [%]

Out[16]=

$$\left\{ 3, \frac{22}{7}, \frac{333}{106}, \frac{355}{113}, \frac{103993}{33102}, \frac{104348}{33215}, \frac{208341}{66317}, \right. \\ \left. \frac{312689}{99532}, \frac{833719}{265381}, \frac{1146408}{364913}, \frac{4272943}{1360120}, \frac{5419351}{1725033}, \frac{80143857}{25510582} \right\}$$

In[17]:= **N**[%]

Out[17]=

{3., 3.142857142857143, 3.141509433962264, 3.1415929203539825, 3.1415926530119025, 3.141592653921421, 3.1415926534674368, 3.1415926536189365, 3.141592653581078, 3.141592653591404, 3.141592653589389, 3.1415926535898153, 3.1415926535897927}

In[18]:= **Sqrt**[2]

Out[18]=

$\sqrt{2}$

In[19]:= **N**[%]

Out[19]=

1.4142135623730951

In[20]:= **ContinuedFraction**[%]

Out[20]=

{1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2}

In[21]:= **Convergents** [%]

Out[21]=

$$\left\{ 1, \frac{3}{2}, \frac{7}{5}, \frac{17}{12}, \frac{41}{29}, \frac{99}{70}, \frac{239}{169}, \frac{577}{408}, \frac{1393}{985}, \frac{3363}{2378}, \frac{8119}{5741}, \frac{19601}{13860}, \frac{47321}{33461}, \right. \\ \left. \frac{114243}{80782}, \frac{275807}{195025}, \frac{665857}{470832}, \frac{1607521}{1136689}, \frac{3880899}{2744210}, \frac{9369319}{6625109}, \frac{22619537}{15994428}, \frac{54608393}{38613965} \right\}$$

In[22]:= **a = 2.26024288746645**

Out[22]=

2.26024288746645

In[23]:= **ContinuedFraction**[a]

Out[23]=

{2, 3, 1, 5, 2, 1, 5, 2, 1, 5, 2, 1, 5, 2, 1, 5, 2, 1}

In[24]:= **Sqrt**[29]

Out[24]=

$\sqrt{29}$

In[25]:= **N[%]**

Out[25]=

5.385164807134504

In[26]:= **ContinuedFraction[%]**

Out[26]=

{5, 2, 1, 1, 2, 10, 2, 1, 1, 2, 10, 2, 1, 1, 2, 10, 2, 1, 1}

In[27]:= **Convergents [%]**

Out[27]=

$$\left\{ 5, \frac{11}{2}, \frac{16}{3}, \frac{27}{5}, \frac{70}{13}, \frac{727}{135}, \frac{1524}{283}, \frac{2251}{418}, \frac{3775}{701}, \frac{9801}{1820}, \frac{101785}{18901}, \frac{213371}{39622}, \frac{315156}{58523}, \frac{528527}{98145}, \frac{1372210}{254813}, \frac{14250627}{2646275}, \frac{29873464}{5547363}, \frac{44124091}{8193638}, \frac{73997555}{13741001} \right\}$$

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