

# Wolfram Mathematica funkcijas

## Saskaitīšana

In[1]:= **2 + 3**

Out[1]= 5

## Atņemšana

In[2]:= **7 - 1**

Out[2]= 6

## Reizināšana

In[3]:= **2 \* 8**

Out[3]= 16

In[4]:= **16**

Out[4]= 16

In[5]:= **2 \* 4 \* 2**

Out[5]= 16

In[6]:= **2 x 3**

Out[6]= 6

In[7]:= **2 x 8**

Out[7]= 16

In[8]:= **2 x 8 x 2 x 3 x 4 x 5 x 6**

Out[8]= 11 520

In[9]:= **211 313 414 x 31 414 141 222**

Out[9]= 6 638 229 429 498 951 908

In[10]:=  **$\pi * e // N$**

Out[10]= 8.53973

## Dalīšana

In[11]:= **6 / 3**

Out[11]= 2

In[12]:= **11 / 2**Out[12]=  $\frac{11}{2}$ In[13]:= **22 / 4**Out[13]=  $\frac{11}{2}$ In[14]:= **1 / 2 + 7 / 3**Out[14]=  $\frac{17}{6}$ In[15]:=  **$\pi$  / e**Out[15]=  $\frac{\pi}{e}$ In[16]:= **3 + 2 \* 4**Out[16]= **11**In[17]:= **(3 + 2) \* 4**Out[17]= **20**In[18]:= **(18 - 15) \* (11 + 2) ^ 3 / 6**Out[18]=  $\frac{2197}{2}$ In[19]:= **(18 - 15) \* (11 + 2) ^ 3 / 6 // N**Out[19]= **1098.5**

Decimāldaļas veidā

In[20]:= **11 / 2 // N**Out[20]= **5.5**In[21]:= **1 / 2 + 7 / 3 // N**Out[21]= **2.83333**In[22]:= **N[ $\pi$  / e , 100]**Out[22]= **1.1557273497909217179100931833126962991208510231644158204997065353272886318409169394401878434235673559****e** skaitļa tuvinājums līdz 20 zīmēm aiz komata (dot rezultātu ar 20 ciparu precizitāti)In[23]:= **N[e, 60]**Out[23]= **2.71828182845904523536028747135266249775724709369995957496697**In[24]:= **3 ^ 3**Out[24]= **27**

In[25]:= **2^64**

Out[25]= 18 446 744 073 709 551 616

In[26]:= **9.81^36**Out[26]=  $5.01284 \times 10^{35}$ 

## Skaitļa faktoriāls

In[27]:= **10!**

Out[27]= 3 628 800

In[28]:= **60!**

Out[28]= 8 320 987 112 741 390 144 276 341 183 223 364 380 754 172 606 361 245 952 449 277 696 409 600 000 000 000 000 000

## Kvadrātsakne

In[29]:= **Sqrt[2]**Out[29]=  $\sqrt{2}$ 

## Konstantes

In[30]:= **E**

Out[30]= e

In[31]:= **Pi**Out[31]=  $\pi$ In[32]:= **Sqrt[2]**Out[32]=  $\sqrt{2}$ In[33]:= **Sqrt[3]**Out[33]=  $\sqrt{3}$ In[34]:= **GoldenRatio // N**

Out[34]= 1.61803

In[35]:= **N[E, 100]**

Out[35]= 2.71828182845904523536028747135266249775724709369995957496696762772407663035354759457138 2178525166427

In[36]:= **Pi // N**

Out[36]= 3.14159

In[37]:= **N[Pi, 100]**

Out[37]= 3.14159265358979323846264338327950288419716939937510582097494459230781640628620899862803 4825342117068

In[38]:= **Degree**

Out[38]=  $^{\circ}$

In[39]:= **180 Degree // N**

Out[39]= 3.14159

In[40]:= **Pi / 180 // N**

Out[40]= 0.0174533

In[41]:= **(Pi / 4) \* (180 Degree / Pi)**

Out[41]= 45  $^{\circ}$

In[42]:= **N[360 Degree]**

Out[42]= 6.28319

In[43]:= **Infinity**

Out[43]=  $\infty$

## Kvadrātsaknes

In[44]:= **Sqrt[9]**

Out[44]= 3

In[45]:= **Sqrt[3] // N**

Out[45]= 1.73205

In[46]:= **N[Sqrt[3], 10]**

Out[46]= 1.732050808

## Kubsaknes tuvinājums

In[47]:=  **$\sqrt[3]{5}$  // N**

Out[47]= 1.70998

In[48]:=  **$\sqrt[3]{1414}$  // N**

Out[48]= 11.2241

In[49]:=  **$\sqrt[3]{2}\sqrt{2}$  // N**

Out[49]= 1.4916

## Logaritms

In[50]:= **Log[4, 1024]**

Out[50]= 5

In[51]:= **Log[E, E]**

Out[51]= 1

In[52]:= **Log[10, 100 000 000]**

Out[52]= **8**

In[53]:= **Log[E^100]**

Out[53]= **100**

In[54]:= **Log10[100]**

Out[54]= **2**

### Trigonometriskās funkcijas

In[55]:= **Sin[Pi / 3]**

Out[55]=  $\frac{\sqrt{3}}{2}$

In[56]:= **Sin[346 Degree] // N**

Out[56]= **-0.241922**

In[57]:= **Cos[0 Degree]**

Out[57]= **1**

In[58]:= **Cos[Pi / 6] // N**

Out[58]= **0.866025**

In[59]:= **Tan[Pi / 3]**

Out[59]=  $\sqrt{3}$

In[60]:= **Tan[Pi / 7] // N**

Out[60]= **0.481575**

In[61]:= **Tan[40 Degree] // N**

Out[61]= **0.8391**

In[62]:= **Cot[Pi]**

Out[62]= **ComplexInfinity**

In[63]:= **ArcCos[ $\frac{\sqrt{3}}{2}$ ]**

Out[63]=  $\frac{\pi}{6}$

In[64]:= **ArcSin[1]**

Out[64]=  $\frac{\pi}{2}$

In[65]:= **ArcCos [1]**

Out[65]= 0

In[66]:= **ArcTan [Pi / 3] // N**

Out[66]= 0.808449

In[67]:= **ArcTan [1]**

Out[67]=  $\frac{\pi}{4}$

In[68]:= **ArcCot [1]**

Out[68]=  $\frac{\pi}{4}$

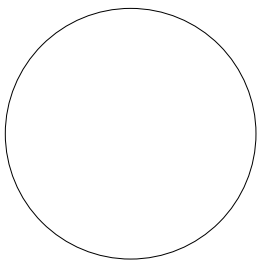
In[69]:= **ArcCot [0] // N**

Out[69]= 1.5708

Riņķis

In[70]:= **Graphics [Circle []]**

Out[70]=



Modulis

In[71]:= **Abs [-64]**

Out[71]= 64

In[72]:= **Abs [64]**

Out[72]= 64

Maksimuma un minimuma atrāšana no saraksta

In[73]:= **Max [π, e, √2, √3, Log [2, 3], GoldenRatio]**

Out[73]= π

In[74]:= **Min [π, e, √2, √3, Log [2, 3], GoldenRatio]**

Out[74]=  $\sqrt{2}$

In[75]:= **Max [52 214 214, 12 414 611, 88 886 119, 57 612 877, 24 322 211, 51 231 213, 11 111 110, 9 999 999]**

Out[75]= 88 886 119

```
In[76]:= Min[52 214 214, 12 414 611, 88 886 119, 57 612 877, 24 322 211, 51 231 213, 11 111 110, 9 999 999]
Out[76]= 9 999 999
```

### Dalīšanas atlikums

```
In[77]:= Mod[7, 2]
Out[77]= 1
```

```
In[78]:= Mod[4, 3]
Out[78]= 1
```

### Dalījums

```
In[79]:= Quotient[7, 2]
Out[79]= 3
```

```
In[80]:= Quotient[34, 12]
Out[80]= 2
```

```
In[81]:= Quotient[49 644, 1215]
Out[81]= 40
```

### Mazākais kopīgais dalāmais (MKD)

```
In[82]:= LCM[5, 6, 7]
Out[82]= 210
```

```
In[83]:= LCM[5121, 6123, 7123, 1515, 5167, 8888]
Out[83]= 17 095 162 630 763 800 440
```

### Lielākais kopīgais dalītājs (LKD)

```
In[84]:= GCD[4, 8, 16]
Out[84]= 4
```

```
In[85]:= Divisors[121]
Out[85]= {1, 11, 121}
```

```
In[86]:= Divisors[177]
Out[86]= {1, 3, 59, 177}
```

```
In[87]:= Divisors[1 771 551]
Out[87]= {1, 3, 9, 27, 81, 21 871, 65 613, 196 839, 590 517, 1 771 551}
```

Uzzināt no kādiem pirmreizinātājiem sastāv skaitlis. {2, 3}, {7, 1} nozīme, ka skaitlis sastāv no  $2 \cdot 2 \cdot 2 \cdot 7 \cdot 1$

```
In[88]:= FactorInteger[56]
Out[88]= {{2, 3}, {7, 1}}
```

```
In[89]:= FactorInteger[465416]
```

```
Out[89]:= {{2, 3}, {7, 1}, {8311, 1}}
```

```
In[90]:= FactorInteger[111111111111]
```

```
Out[90]:= {{3, 1}, {7, 1}, {11, 1}, {13, 1}, {37, 1}, {101, 1}, {9901, 1}}
```

```
In[91]:= Random[]
```

```
Out[91]:= 0.673223
```

```
In[92]:= Round[44/17]
```

```
Out[92]:= 3
```

```
In[93]:= 12 + Round[(8 - 2) RandomInteger[{1, 10}]]
```

```
Out[93]:= 42
```

Nejaušs vesels skaitlis diapazonā no 1 līdz 100

```
In[94]:= RandomInteger[{1, 100}]
```

```
Out[94]:= 95
```

```
In[95]:= Random[Integer, 12]
```

```
Out[95]:= 7
```

```
In[96]:= Random[Real, {1, 13}]
```

```
10
```

```
Out[96]:= 7.95187
```

```
Out[97]:= 10
```

```
In[98]:= Random[Integer, {1, 13}]
```

```
Out[98]:= 1
```

```
In[99]:= Random[Real, 1]
```

```
Out[99]:= 0.324777
```

```
In[100]:=
```

Nejaušs pirmskaitlis diapazonā no 1 līdz 100

```
In[101]:= RandomPrime[{1, 100}]
```

```
Out[101]:= 43
```

Atrod 100 pirmskaitļus pēc kārtas augoša secība



```
In[102]:= Prime[Range[100]]
```

```
Out[102]:= {2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97,
  101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193,
  197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293, 307,
  311, 313, 317, 331, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409, 419, 421,
  431, 433, 439, 443, 449, 457, 461, 463, 467, 479, 487, 491, 499, 503, 509, 521, 523, 541}
```

```
In[103]:= PrimeQ[1]
```

```
Out[103]:= False
```

```
In[104]:= PrimeQ[2]
```

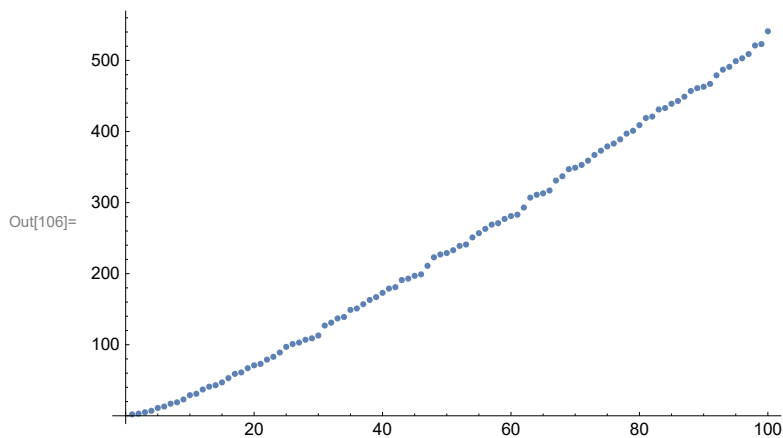
```
Out[104]:= True
```

```
In[105]:= PrimeQ[214 214 141]
```

```
Out[105]:= True
```

Atrod 100 pirmskaitļus pēc kārtas augoša secība un atliek skaitļus grafikā

```
In[106]:= ListPlot[Table[Prime[n], {n, 100}]]
```



```
In[107]:= PrimePi[8]
```

```
Out[107]:= 4
```

Skaitļu noapaļošana

```
In[108]:= Round[3.57534]
```

```
Out[108]:= 4
```

```
In[109]:= 4 !!
```

```
Out[109]:= 8
```

```
In[110]:= % / 4
```

```
Out[110]:= 2
```

In[111]:= **% \* % / 4**

Out[111]= **1**

In[112]:= **%^2 // N**

Out[112]= **1.**

In[113]:= **FactorInteger[8]**

Out[113]= **{ {2, 3} }**

In[114]:= **BaseForm[2, 2]**

Out[114]//BaseForm=  
 **$10_2$**

In[115]:= **4 ! ! !**

Out[115]= **40 320**

In[116]:= **Sqrt[-9]**

Out[116]=  **$3 i$**

In[117]:= **z = 10 - 3 i**

Out[117]=  **$10 - 3 i$**

In[118]:= **Re[z]**

Out[118]= **10**

In[119]:= **Im[z]**

Out[119]= **-3**

In[120]:= **Conjugate[z]**

Out[120]=  **$10 + 3 i$**

In[121]:= **Abs[z]**

Out[121]=  **$\sqrt{109}$**

In[122]:= **Arg[z]**

Out[122]=  **$-\text{ArcTan}\left[\frac{3}{10}\right]$**

In[123]:= **Arg[z] // N**

Out[123]= **-0.291457**

In[124]:= **X = 10**

Out[124]= **10**

In[125]:= **X^2**

Out[125]= **100**

In[126]:= **X^X**

Out[126]= **10 000 000 000**

In[127]:= **(X/3)/6**

Out[127]=  $\frac{5}{9}$

In[128]:= **X = .**

In[129]:= **X \* X \* X**

Out[129]= **X<sup>3</sup>**

In[130]:= **3 X**

Out[130]= **3 X**

In[131]:= **xy**

Out[131]= **xy**

In[132]:= **x - 12 x + 7 x^2 + 5 x^2**

Out[132]= **- 11 x + 12 x<sup>2</sup>**

In[133]:=  **$\frac{x/20 + 20 - 400 x}{8} /. x \rightarrow 8$**

Out[133]=  **$-\frac{7949}{20}$**

In[134]:= **(2 x + 3) (2 x - 10) (3 x^2 - 6 x - 7)**

Out[134]= **(- 10 + 2 x) (3 + 2 x) (- 7 - 6 x + 3 x<sup>2</sup>)**

In[135]:= **Expand [(2 x + 3) (2 x - 10) (3 x^2 - 6 x - 7)]**

Out[135]= **210 + 278 x - 34 x<sup>2</sup> - 66 x<sup>3</sup> + 12 x<sup>4</sup>**

In[136]:= **Factor [(2 x + 3) (2 x - 10) (3 x^2 - 6 x - 7)]**

Out[136]= **2 (- 5 + x) (3 + 2 x) (- 7 - 6 x + 3 x<sup>2</sup>)**

In[137]:= **(2 x + 3) / (2 x - 10)**

Out[137]=  **$\frac{3 + 2 x}{- 10 + 2 x}$**

Atvasināšana

```
In[138]:= D[x^2, x]
```

```
Out[138]= 2 x
```

```
In[139]:= D[Cos[x], x]
```

```
Out[139]= -Sin[x]
```

```
In[140]:= D[Sin[x], x]
```

```
Out[140]= Cos[x]
```

### Integrēšana

```
In[141]:= Integrate[2 x, x]
```

```
Out[141]= x^2
```

```
In[142]:= Integrate[Cos[x], x]
```

```
Out[142]= Sin[x]
```

```
In[143]:= Integrate[Sin[x], x]
```

```
Out[143]= -Cos[x]
```

```
In[144]:= Integrate[Cos[x] / x, x]
```

```
Out[144]= CosIntegral[x]
```

```
In[145]:= a = 3
          b = 4
          a == b
          a < b
          a >= b
          a != b
          a > 0
```

```
Out[145]= 3
```

```
Out[146]= 4
```

```
Out[147]= False
```

```
Out[148]= True
```

```
Out[149]= False
```

```
Out[150]= True
```

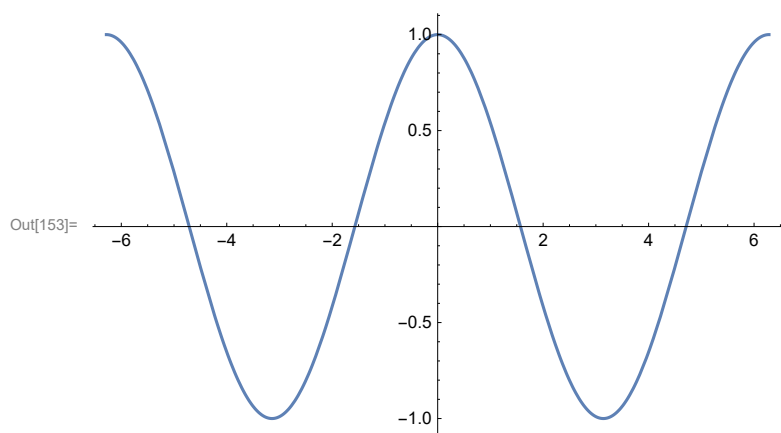
```
Out[151]= True
```

```
In[152]:= FindRoot[Sin[x] == x, {x, 1}]
```

```
Out[152]= {x -> 2.8012 x 10^-8}
```

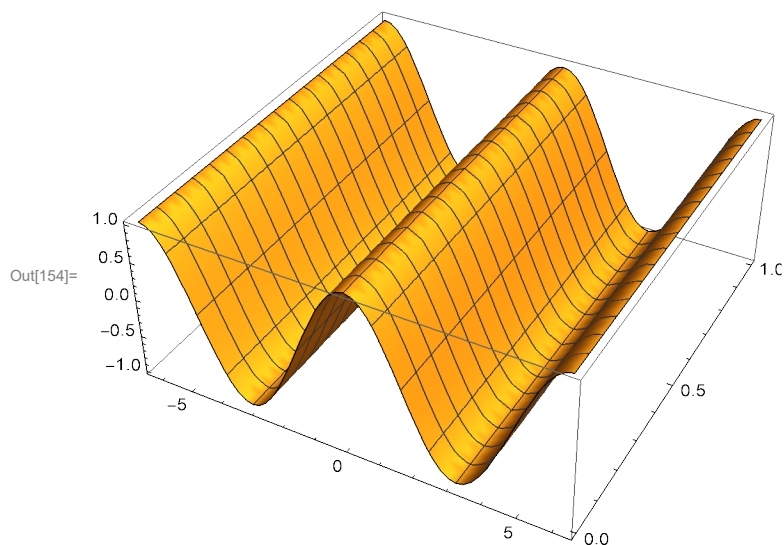
### Funkcijas grafiks

In[153]:= **Plot[Cos[x], {x, -2 Pi, 2 Pi}]**



Funkcijas grafiks telpā

In[154]:= **Plot3D[Cos[x], {x, -2 Pi, 2 Pi}, {y, 0, 1}]**



Mainīgo definēšana un to izmantošana

In[155]:= **z = i - 2**

Out[155]=  $-2 + i$

In[156]:= **t = 2 i + 5**

Out[156]=  $5 + 2 i$

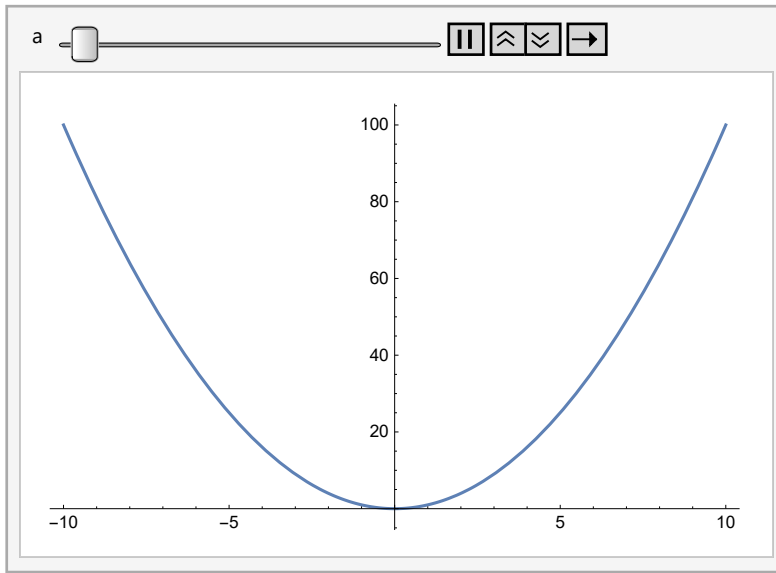
In[157]:= **z + t**

Out[157]=  $3 + 3 i$

Animācija.  $x^2 + x^a$  funkcijas animācija, kur  $a$  mainās no 0 līdz 10.  $\{x, -10, 10\}$  nosaka animācijas robežas pēc  $x$  ass.

In[158]:= **Animate**[**Plot**[ $x^2+x*a$ , { $x$ , -10, 10}], { $a$ , 0, 10}]

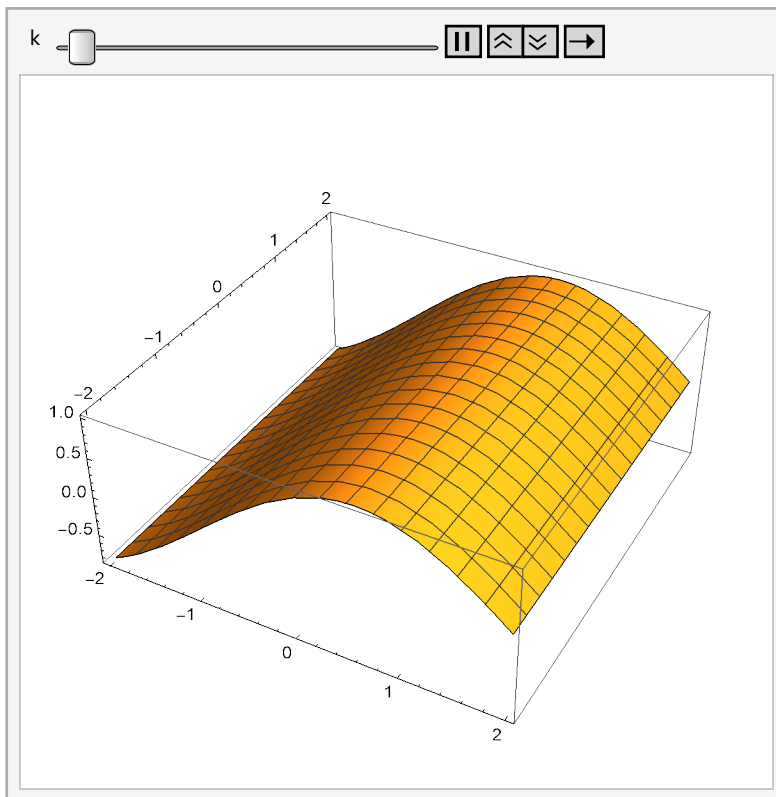
Out[158]=



Animācija.  $\sin(x+k)$  funkcijas animācija, kur  $k$  mainās no 1 līdz 10. { $x$ , -2, 2} nosaka animācijas robežas pēc  $x$  ass, { $y$ , -2, 2} nosaka animācijas robežas pēc  $y$  ass.

In[159]:= **Animate**[**Plot3D**[ $\sin[x+k]$ , { $x$ , -2, 2}, { $y$ , -2, 2}], { $k$ , 1, 10}]

Out[159]=



Matricas atspoguļošana

In[160]:= **mat** = {{2, 8, -5}, {0, 1, 3}, {10, 2, 4}} // **MatrixForm**

Out[160]//**MatrixForm**=

$$\begin{pmatrix} 2 & 8 & -5 \\ 0 & 1 & 3 \\ 10 & 2 & 4 \end{pmatrix}$$

Matricas determinanta noteikšana

In[161]:= **Det**[{{218, 329}, {18, 29}}]

Out[161]= 400

In[162]:= **Det**[ $\begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix}$ ]

Out[162]=  $-a_{12} \times a_{21} + a_{11} \times a_{22}$

In[163]:= **Det**[ $\begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix}$ ]

Out[163]=  $-a_{13} \times a_{22} \times a_{31} + a_{12} \times a_{23} \times a_{31} + a_{13} \times a_{21} \times a_{32} - a_{11} \times a_{23} \times a_{32} - a_{12} \times a_{21} \times a_{33} + a_{11} \times a_{22} \times a_{33}$

In[164]:= **Det**[ $\begin{pmatrix} 4 & 2 & -1 \\ 1/3 & 11/27 & 5/9 \\ 900 & 90 & 180 \end{pmatrix}$ ]

Out[164]= 1310

In[165]:= **Det**[ $\begin{pmatrix} a+b & a-b & b \\ c+b & 2c-b & b \\ b & -b & b \end{pmatrix}$ ]

Out[165]= 12 c

In[166]:= {{1, 2}, {3, 4}} \* 2

Out[166]= {{2, 4}, {6, 8}}

In[167]:= **Transpose**[{{5, 4}, {3, 7}}]

Out[167]= {{5, 3}, {4, 7}}

In[168]:= **Inverse**[{{1, 2}, {3, 4}}]

Out[168]=  $\left\{ \{-2, 1\}, \left\{ \frac{3}{2}, -\frac{1}{2} \right\} \right\}$

Bezgalīga summa

In[169]:=  $\sum_{n=1}^{\infty} \frac{1}{n^2}$

Out[169]=  $\frac{\pi^2}{6}$

$$\text{In[170]:= } \sum_{n=0}^{\infty} \frac{1}{2^n}$$

$$\text{Out[170]= } 2$$

$$\text{In[171]:= } \sum_{n=0}^{\infty} \frac{1}{n!}$$

$$\text{Out[171]= } e$$

Bezgalīgs reizinājums

$$\text{In[172]:= } \prod_{n=1}^{\infty} \left( \frac{4n^2}{4n^2 - 1} \right)$$

$$\text{Out[172]= } \frac{\pi}{2}$$

Robeža

$$\text{In[173]:= } \lim_{x \rightarrow \infty} \left( 1 + \frac{1}{x} \right)^x$$

$$\text{Out[173]= } e$$

$$\text{In[174]:= } \text{Limit}[1/x, x \rightarrow \infty]$$

$$\text{Out[174]= } 0$$

$$\text{In[175]:= } \text{Limit}[1/x, x \rightarrow 0, \text{Direction} \rightarrow 1]$$

$$\text{Out[175]= } -\infty$$

$$\text{In[176]:= } \text{Limit}[1/x, x \rightarrow 0, \text{Direction} \rightarrow -1]$$

$$\text{Out[176]= } \infty$$

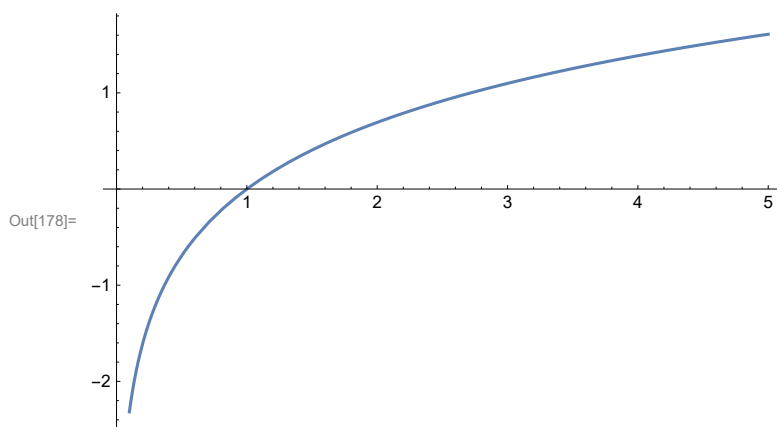
Logaritms

$$\text{In[177]:= } \text{Log}[2, 64]$$

$$\text{Out[177]= } 6$$



In[178]:= **Plot**[**Log**[x], {x, 0, 5}]



In[179]:= **Log**[3.]

Out[179]= 1.09861

Kvadrātvienādojumu atrisināšana

In[180]:= **Solve**[**2 x**<sup>2</sup> + **x** - **3** == **0**, **x**]

Out[180]=  $\left\{ \left\{ x \rightarrow -\frac{3}{2} \right\}, \left\{ x \rightarrow 1 \right\} \right\}$

Vienādojumu sistēmas atrisināšana

In[181]:= **Solve**[{**x**<sup>2</sup> + **8 y** == **3**, **-3 x** + **24 y** == **-9**}, {**x**, **y**}]

Out[181]=  $\left\{ \left\{ x \rightarrow -3, y \rightarrow -\frac{3}{4} \right\}, \left\{ x \rightarrow 2, y \rightarrow -\frac{1}{8} \right\} \right\}$

In[182]:= **Solve**[{**Tan**[x] == **Sqrt**[2] / 2, **0** < **x** < **2 Pi**}]

Out[182]=  $\left\{ \left\{ x \rightarrow \text{ArcTan}\left[\frac{1}{\sqrt{2}}\right] \right\}, \left\{ x \rightarrow \pi + \text{ArcTan}\left[\frac{1}{\sqrt{2}}\right] \right\} \right\}$

In[183]:= **Solve**[**Cos**[x]<sup>2</sup> + **Sin**[x]<sup>2</sup> == **x**]

Out[183]=  $\left\{ \left\{ x \rightarrow 1 \right\} \right\}$

In[184]:= **Solve**[{**x**<sup>2</sup> == (**y** - **6**)<sup>2</sup>, **x** \* (**x** - **y**) == **y**<sup>2</sup> \* (**x** - **y**)}, {**x**, **y**}]

Out[184]=  $\left\{ \left\{ x \rightarrow 3, y \rightarrow 3 \right\}, \left\{ x \rightarrow 9, y \rightarrow -3 \right\}, \left\{ x \rightarrow 4, y \rightarrow 2 \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 - i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 - i \sqrt{23} \right) \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 + i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 + i \sqrt{23} \right) \right\} \right\}$

In[185]:=  $\left\{ \left\{ x \rightarrow 3, y \rightarrow 3 \right\}, \left\{ x \rightarrow 9, y \rightarrow -3 \right\}, \left\{ x \rightarrow 4, y \rightarrow 2 \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 - i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 - i \sqrt{23} \right) \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 + i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 + i \sqrt{23} \right) \right\} \right\}$

Out[185]=  $\left\{ \left\{ x \rightarrow 3, y \rightarrow 3 \right\}, \left\{ x \rightarrow 9, y \rightarrow -3 \right\}, \left\{ x \rightarrow 4, y \rightarrow 2 \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 - i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 - i \sqrt{23} \right) \right\}, \left\{ x \rightarrow \frac{1}{2} \left( -11 + i \sqrt{23} \right), y \rightarrow \frac{1}{2} \left( 1 + i \sqrt{23} \right) \right\} \right\}$

```
In[186]:= Roots [ $x^2 + 3x - 4 == 0$ ,  $x$ ]
```

```
Out[186]=  $x == -4 \mid \mid x == 1$ 
```

Kopu apvienojums

```
In[187]:= {a, b, c}  $\cup$  {b, c, d}
```

```
Out[187]= {3, 4, c, d}
```

```
In[188]:= {a, b, c, d}
```

```
Out[188]= {3, 4, c, d}
```

```
In[189]:= Union [{a, b, c}, {b, c, d}]
```

```
Out[189]= {3, 4, c, d}
```

Kopu šķēlums

```
In[190]:= {a, b, c}  $\cap$  {b, c, d}
```

```
Out[190]= {4, c}
```

```
In[191]:= Intersection [{a, b, c}, {b, c, d}]
```

```
Out[191]= {4, c}
```

Atrast kopas visas iespējamās apakškopas

```
In[192]:= Subsets [{1, 2, 3}]
```

```
Out[192]= {{}, {1}, {2}, {3}, {1, 2}, {1, 3}, {2, 3}, {1, 2, 3}}
```

Atrast leņķi starp vektoriem

```
In[193]:= VectorAngle [{2, 0}, {1, 1}]
```

```
Out[193]=  $\frac{\pi}{4}$ 
```

```
In[194]:=  $\frac{\pi}{4}$ 
```

```
Out[194]=  $\frac{\pi}{4}$ 
```

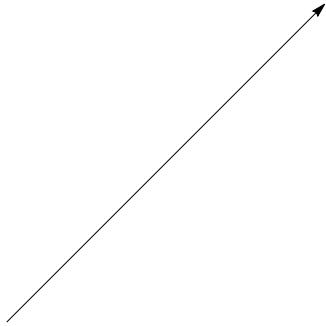
Vektora grafiskā interpretācija

```
In[195]:= Graphics [Arrow[{0, 0}, {2, 0}]]
```

```
Out[195]= 
```

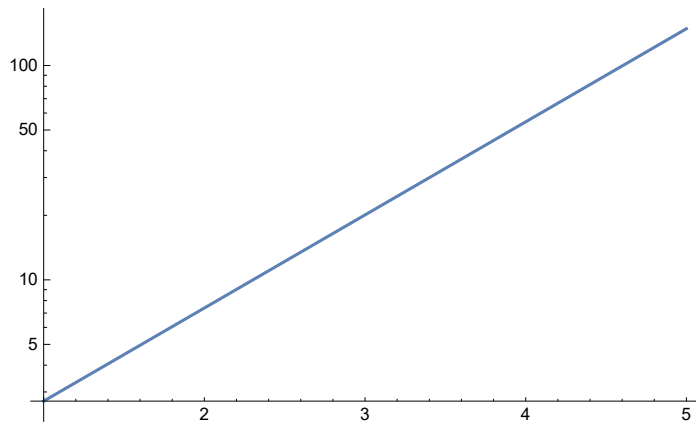
In[196]:= **Graphics**[**Arrow**[{{0, 0}, {1, 1}}]]

Out[196]=



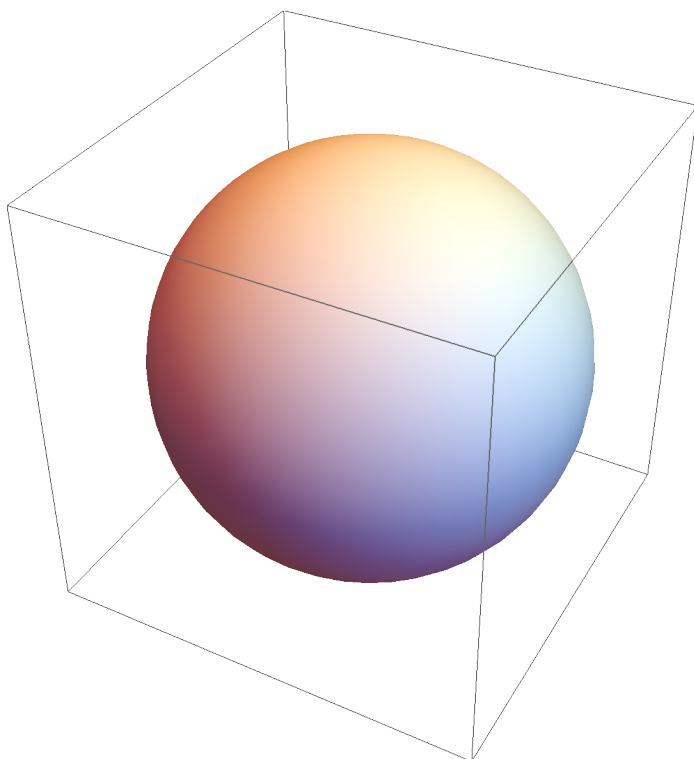
In[197]:= **LogPlot**[**E**^x, {x, 1, 5}]

Out[197]=



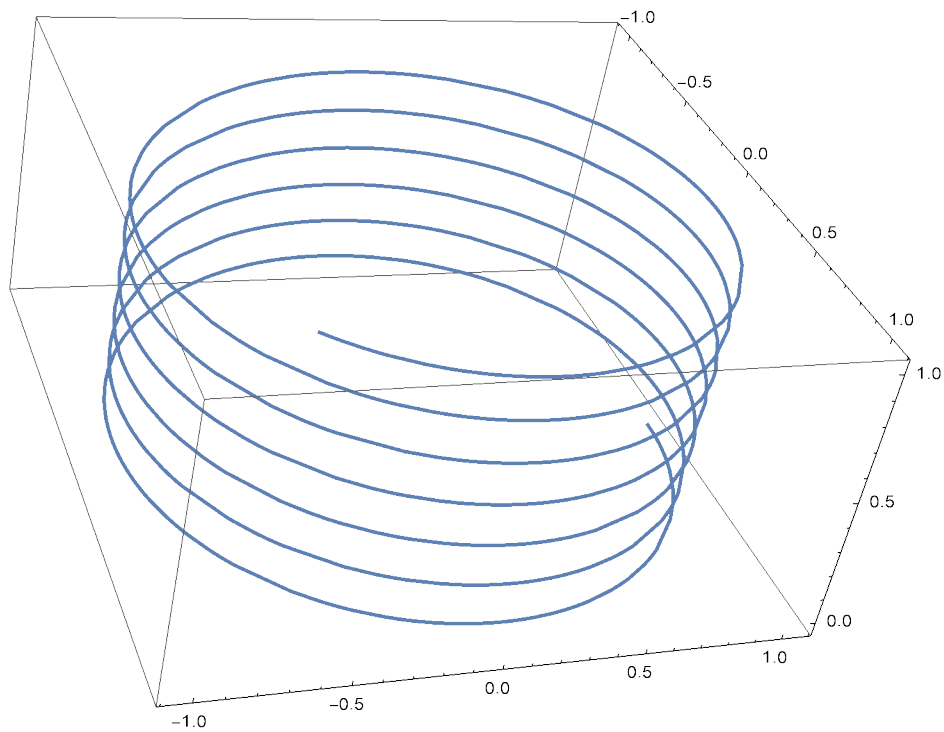
In[198]:= **Graphics3D[Ball[]]**

Out[198]=



In[199]:= **ParametricPlot3D[{Sin[u], Cos[u], u/40}, {u, 0, 40}]**

Out[199]=



Ielādēt no konkrēta ģeogrāfiskā reģiona karogus

In[200]:= EntityValue[ Asia GEOGRAPHIC REGION [ countries ], "FlagImage"]





