

OBS: Alla symboler som visas här måste skrivas i ”math mode”, vilket till exempel kan åstadkommas genom att omgärda dem med dollarstecken (\$).

Exempel: Skriv $\alpha \cdot \beta$ för att få $\alpha \cdot \beta$.

Några få av symbolerna på denna och nästa sida kräver att man har `\usepackage{latexsym}` i början av filen

α	<code>\alpha</code>	Σ	<code>\Sigma</code>	\odot	<code>\odot</code>
β	<code>\beta</code>	Υ	<code>\Upsilon</code>	\bigcirc	<code>\bigcirc</code>
γ	<code>\gamma</code>	Φ	<code>\Phi</code>	\dagger	<code>\dagger</code>
δ	<code>\delta</code>	Ψ	<code>\Psi</code>	\ddagger	<code>\ddagger</code>
ϵ	<code>\epsilon</code>	Ω	<code>\Omega</code>	\amalg	<code>\amalg</code>
ε	<code>\varepsilon</code>				
ζ	<code>\zeta</code>	\pm	<code>\pm</code>	\leq	<code>\leq</code>
η	<code>\eta</code>	\mp	<code>\mp</code>	\asymp	<code>\prec</code>
θ	<code>\theta</code>	\times	<code>\times</code>	\asymp	<code>\preceq</code>
ϑ	<code>\vartheta</code>	\div	<code>\div</code>	\ll	<code>\ll</code>
ι	<code>\iota</code>	\star	<code>\star</code>	\cup	<code>\subset</code>
κ	<code>\kappa</code>	\circ	<code>\circ</code>	\sqcup	<code>\subseteqq</code>
λ	<code>\lambda</code>	\bullet	<code>\bullet</code>	\in	<code>\in</code>
μ	<code>\mu</code>	\cdot	<code>\cdot</code>	\vdash	<code>\vdash</code>
ν	<code>\nu</code>	\cap	<code>\cap</code>	\geq	<code>\geq</code>
ξ	<code>\xi</code>	\cup	<code>\cup</code>	\succ	<code>\succ</code>
π	<code>\pi</code>	\oplus	<code>\uplus</code>	\succcurlyeq	<code>\succcurlyeq</code>
ϖ	<code>\varpi</code>	\square	<code>\sqcap</code>	\gg	<code>\gg</code>
ρ	<code>\rho</code>	\square	<code>\sqcup</code>	\supset	<code>\supset</code>
ϱ	<code>\varrho</code>	\vee	<code>\vee</code>	\supseteqq	<code>\supseteqq</code>
σ	<code>\sigma</code>	\wedge	<code>\wedge</code>	\sqsupset	<code>\sqsupset</code>
ς	<code>\varsigma</code>	\backslash	<code>\setminus</code>	\sqsupseteqq	<code>\sqsupseteqq</code>
τ	<code>\tau</code>	\wr	<code>\wr</code>	\ni	<code>\ni</code>
v	<code>\upsilon</code>	\diamond	<code>\diamond</code>	\dashv	<code>\dashv</code>
ϕ	<code>\phi</code>	\triangle	<code>\bigtriangleup</code>	\equiv	<code>\equiv</code>
φ	<code>\varphi</code>	\triangledown	<code>\bigtriangledown</code>	\sim	<code>\sim</code>
χ	<code>\chi</code>	\triangleleft	<code>\triangleleft</code>	\simeq	<code>\simeq</code>
ψ	<code>\psi</code>	\triangleright	<code>\triangleright</code>	\asymp	<code>\asymp</code>
ω	<code>\omega</code>	\triangleleft	<code>\lhd</code>	\approx	<code>\approx</code>
Γ	<code>\Gamma</code>	\triangleright	<code>\rhd</code>	\cong	<code>\cong</code>
Δ	<code>\Delta</code>	\triangleleft	<code>\unlhd</code>	\neq	<code>\neq</code>
Θ	<code>\Theta</code>	\triangleright	<code>\unrhd</code>	\doteq	<code>\doteq</code>
Λ	<code>\Lambda</code>	\oplus	<code>\oplus</code>	\propto	<code>\propto</code>
Ξ	<code>\Xi</code>	\ominus	<code>\ominus</code>	\models	<code>\models</code>
Π	<code>\Pi</code>	\otimes	<code>\otimes</code>	\perp	<code>\perp</code>
		\oslash	<code>\oslash</code>	$ $	<code>\mid</code>

	\ , \parallel	\hbar	\hbar	\clubsuit	\clubsuit
\bowtie	\bowtie	\imath	\imath	\diamondsuit	\diamondsuit
\Join	\Join	\jmath	\jmath	\heartsuit	\heartsuit
\smile	\smile	ℓ	\ell	\spadesuit	\spadesuit
\frown	\frown	\wp	\wp	\sum	\sum
\leftarrow	\leftarrow	\Re	\Re	\prod	\prod
\Leftarrow	\Leftarrow	\Im	\Im	\coprod	\coprod
\rightarrow	\rightarrow	\mho	\mho	\int	\int
\Rightarrow	\Rightarrow	\prime	\prime	\oint	\oint
\Leftrightarrow	\Leftrightarrow	\emptyset	\emptyset	\bigcap	\bigcap
\Leftrightarrow	\Leftrightarrow	∇	\nabla	\bigcup	\bigcup
\mapsto	\mapsto	\surd	\surd	\bigsqcup	\bigsqcup
\longmapsto	\longmapsto	\top	\top	\bigvee	\bigvee
\longleftarrow	\longleftarrow	\bot	\bot	\bigwedge	\bigwedge
\hookrightarrow	\hookrightarrow	\angle	\angle	\bigodot	\bigodot
\leadsto	\leadsto	\forall	\forall	\bigotimes	\bigotimes
\uparrow	\uparrow	\exists	\exists	\bigoplus	\bigoplus
\downarrow	\downarrow	\neg	\neg	\biguplus	\biguplus
\Uparrow	\Uparrow	\flat	\flat		
\Downarrow	\Downarrow	\natural	\natural		
\Updownarrow	\Updownarrow	\sharp	\sharp		
\nearrow	\nearrow	\backslash	\backslash	\lfloor	\lfloor
\searrow	\searrow	∂	\partial	\rfloor	\rfloor
\swarrow	\swarrow	∞	\infty	\lceil	\lceil
\nwarrow	\nwarrow	\Box	\Box	\rceil	\rceil
\aleph	\aleph	\Diamond	\Diamond	\langle	\langle
		\triangle	\triangle	\rangle	\rangle

$$x^2 \neq -1$$

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$$\pi \in \mathbb{R} \setminus \mathbb{Q}$$

$$\pi \in \mathbb{R} \setminus \mathbb{Q} \quad \text{Se fotnot}$$

$$\pi \notin \mathbb{Q}$$

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$$\sin x = \log(\pi + 2x)$$

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$$\text{Fel: } \sin x = \log(\pi + 2x)$$

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¹För att få \mathbb{Q} , \mathbb{R} etc. krävs att man har `\usepackage{amssymb}` i början av filen

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$\text{\LaTeX: } \sum_{i=1}^n i = \frac{n(n+1)}{2}$$

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$$\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$$

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$$\lim_{x \rightarrow \infty} \frac{\ln x}{x} = 0$$

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$$a = x \text{ och } b = y$$

$$\text{\LaTeX: } a=x \text{ \boxed{och} } b=y$$

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$$\text{\LaTeX: } a=x \text{ \boxed{~~och~~} } b=y$$

$$\sqrt{-1} = i$$

$$\text{\LaTeX: } \sqrt{-1} = i$$

$$x = \frac{-p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$

$$\text{\LaTeX: } x = \frac{-p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$

$$\int_0^\pi x dx$$

$$\text{\LaTeX: } \int_0^\pi x \, dx$$

$$\text{snyggare: } \int_0^\pi x dx$$

$$\text{\LaTeX: } \int_0^\pi x \, dx$$

```
\pmatrix{
1 & 1 & 1 & 1 \cr
2 & -1 & 0 & 1 \cr
16 & 4 & 0 & -1 \cr
8 & -4 & 2 & -1}
```

$$\begin{pmatrix} 1 & 1 & 1 & 1 \\ 2 & -1 & 0 & 1 \\ 16 & 4 & 0 & -1 \\ 8 & -4 & 2 & -1 \end{pmatrix}$$

```
\left(
\begin{array}{cccc|r}
1 & 1 & 1 & 1 & -10 \\
2 & -1 & 0 & 1 & 0 \\
16 & 4 & 0 & -1 & 0 \\
8 & -4 & 2 & -1 & 46 \\
\end{array}
\right)
```

$$\left(\begin{array}{cccc|c} 1 & 1 & 1 & 1 & -10 \\ 2 & -1 & 0 & 1 & 0 \\ 16 & 4 & 0 & -1 & 0 \\ 8 & -4 & 2 & -1 & 46 \end{array} \right)$$

```
\begin{array}{rrrrrrrrr}
4a - 2b + 2d = 0 \\
16a + 4b - d = 0 \\
a + b + c + d = -10 \\
8a - 4b + 2c - d = 46 \\
\end{array}
```

$$\begin{array}{rrrrr}
4a & - & 2b & + & 2d = 0 \\
16a & + & 4b & - & d = 0 \\
a & + & b & + & c & + & d = -10 \\
8a & - & 4b & + & 2c & - & d = 46
\end{array}$$

```
\begin{eqnarray*}
1 &=& 1 \\
1+3 &=& 4 \\
1+3+5 &=& 9 \\
\end{eqnarray*}
```

```
\begin{array}{ccccccccc}
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
\end{array}
```

$$\begin{array}{ccccccccc}
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
&&&&&&&1\\
\end{array}$$

Att definiera egna ”macros”

```
\newcommand\minmatrix{  
$\\pmatrix{  
a & b\\cr  
c & d\\cr  
}$$}
```

\minmatrix

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

```
\newcommand\mat[4]{\\pmatrix{  
#1 & #2\\cr  
#3 & #4\\cr  
}}
```

\mat abcd

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

\mat {\sqrt{x}} {-1/\sin x} {1} {\sqrt{x}}

$$\begin{pmatrix} \sqrt{x} & -1/\sin x \\ 1 & \sqrt{x} \end{pmatrix}$$

Ett ibland enklare men farligare sätt

```
\def\mat#1,#2,#3,#4,{\\pmatrix{  
#1 & #2\\cr  
#3 & #4\\cr  
}}
```

\mat a,b,c,d,

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

\mat \sqrt{x}, -1/\sin x, 1, \sqrt{x},

$$\begin{pmatrix} \sqrt{x} & -1/\sin x \\ 1 & \sqrt{x} \end{pmatrix}$$

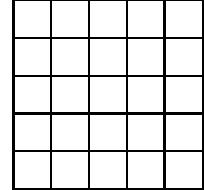
Att använda \def är farligt, för att man riskerar att definiera om något som TEX använder. Inga varningar utfärdas i sådana fall, men det gör det däremot om man försöker definiera om en ”macro” med kommandot \newcommand.

Att rita är ganska jobbigt i L^AT_EX (men snyggt blir det!). Det blir lättare om man har följande två rader i början av filen:

```
\usepackage{epic}
\usepackage{eepic}
```

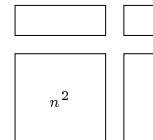
Då kan man tex rita följande på ett enkelt sätt:

```
\setlength{\unitlength}{1mm}
\begin{picture}(100,25)
\put(35,0){\grid(25,25)(5,5)}
\end{picture}
```



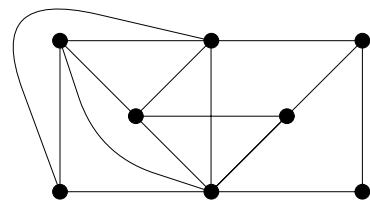
Fler exempel

```
\setlength{\unitlength}{.8mm}
\begin{picture}(30,0)
\put(153,3){
\path(0,0)(15,0)(15,15)(0,15)(0,0)
\path(0,18)(15,18)(15,23)(0,23)(0,18)
\path(18,0)(18,15)(23,15)(23,0)(18,0)
\path(18,18)(18,23)(23,23)(23,18)(18,18)
\put(7.5,7.5){\makebox(0,0){\tiny $n^2$}}
}
\end{picture}
```

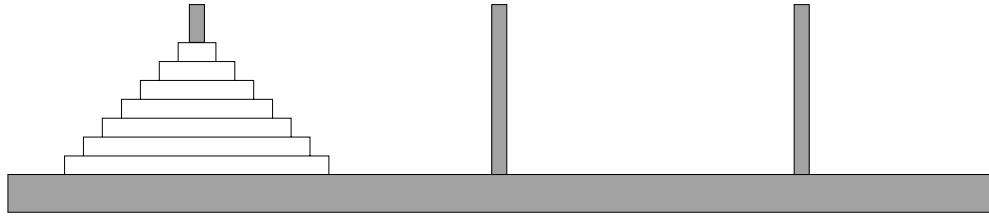


```
\setlength{\unitlength}{10mm}
\newcommand\p{\circle*{0.2}}
\begin{picture}(17,3)
\put(10,0){
\put(0,2){\p} \put(2,2){\p} \put(4,2){\p}
\put(1,1){\p} \put(3,1){\p}
\put(0,0){\p} \put(2,0){\p} \put(4,0){\p}

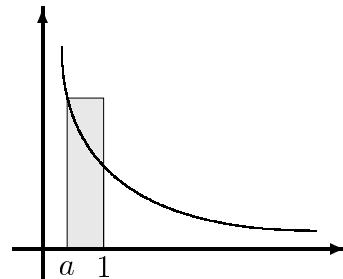
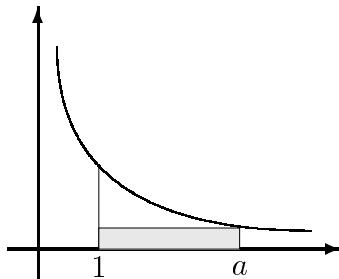
\path(0,2)(0,0)(4,0)(4,2)(0,2)(2,0)(2,2)(1,1)(3,1)(2,0)(4,2)
\spline(0,0)(-1,2.7)(2,2)
\spline(2,0)(0.5,0.5)(0,2)
}
\end{picture}
```



Med hjälp av paketen `epic` och `epic` kan man även skugga (det är inte säkert att detta syns på skärmen, utan du får kanske skriva ut sidan). Man kan modifiera `\texture` för att göra skuggan mörkare/ljusare.



```
\texture{  
    aaaaaaaaaa 0 0 0 aaaaaaaaaa 0 0 0  
    aaaaaaaaaa 0 0 0 aaaaaaaaaa 0 0 0  
    aaaaaaaaaa 0 0 0 aaaaaaaaaa 0 0 0  
    aaaaaaaaaa 0 0 0 aaaaaaaaaa 0 0 0  
}  
  
\setlength{\unitlength}{.5mm}  
\begin{picture}(280,80)  
    \put(20,10){  
        \put(0,0){\shade\path(0,0)(260,0)(260,10)(0,10)(0,0)}  
        \put(48,10){\shade\path(0,35)(0,45)(4,45)(4,35)(0,35)}  
        \put(128,10){\shade\path(0,0)(0,45)(4,45)(4,0)(0,0)}  
        \put(208,10){\shade\path(0,0)(0,45)(4,45)(4,0)(0,0)}  
        %% Nu kommer alla skivorna  
        \put(15,10){\path(0,0)(0,5)(70,5)(70,0)}  
        \put(20,15){\path(0,0)(0,5)(60,5)(60,0)}  
        \put(25,20){\path(0,0)(0,5)(50,5)(50,0)}  
        \put(30,25){\path(0,0)(0,5)(40,5)(40,0)}  
        \put(35,30){\path(0,0)(0,5)(30,5)(30,0)}  
        \put(40,35){\path(0,0)(0,5)(20,5)(20,0)}  
        \put(45,40){\path(0,0)(0,5)(10,5)(10,0)}  
    }  
\end{picture}
```



```
\texture{
a00000a0 0 0 0 a00000a0 0 0 0
}

\setlength{\unitlength}{.8mm}%
\begin{picture}(50,40)
\put(20,0){
\put(100,0){\shade{\path(10,0)(10,25)(4,25)(4,0)(10,0)}}

\multiput(0,0)(100,0){2}{

\thicklines
\put(0,-5){\vector(0,1){45}}
\put(-5,0){\vector(1,0){55}}


\thinlines

\qbezier(3,33.3)(3,3)(45,3)      %%%%%% Detta är kurvan <<<<<<<<
\path(10,0)(10,13.5)

\put(10,-3){\makebox(0,0){1}}
}

\put(20,0){
\put(33.3,-2.7){\makebox(0,-1){$a$}}
\shade{\path(10,0)(10,3.5)(33.3,3.5)(33.3,0)(10,0)}
}

\put(120,0){
\put(4,-2.7){\makebox(0,-1){$a$}}
}
}

\end{picture}
```

Följande kommandon, som alla måste föregås av `\`, kräver att man har `\usepackage{amssymb}` i början av filen

\cdot	boxdot	$\leftarrow\!\!\!\rho$	looparrowleft	\trianglelefteq	trianglelefteq
\boxplus	boxplus	$\leftarrow\!\!\!\rightarrow$	looparrowright	\bigstar	bigstar
\boxtimes	boxtimes	\circledeq	circeq	\between	between
\square	square	\succsim	succsim	\blacktriangledown	blacktriangledown
\blacksquare	blacksquare	\gtrsim	gtrsim	\blacktriangleright	blacktriangleright
\centerdot	centerdot	$\approx\!\!\!\approx$	gtrapprox	\blacktriangleleft	blacktriangleleft
\lozenge	lozenge	\multimap	multimap	\vartriangle	vartriangle
\blacklozenge	blacklozenge	\therefore	therefore	\blacktriangle	blacktriangle
\circlearrowright	circlearrowright	\because	because	\triangledown	triangledown
\circlearrowleft	circlearrowleft	\doteqdot	doteqdot	\eqcirc	eqcirc
\rightleftharpoons	rightleftharpoons	\triangleq	triangleq	\lesseqgtr	lesseqgtr
\leftrightharpoons	leftrightharpoons	\precsim	precsim	\gtreqless	gtreqless
\boxminus	boxminus	\lessapprox	lessapprox	\lesseqqgtr	lesseqqgtr
\vdash	Vdash	\eqslantless		\gtreqqless	
\Vdash	Vvdash	\eqslantgtr		\Rightarrow	Rrightarrow
\vDash	vDash	\curlyeqprec		\Leftarrow	Lleftarrow
\twoheadrightarrow	twoheadrightarrow	\curlyeqsucc		\veebar	veebar
\twoheadleftarrow	twoheadleftarrow	\preccurlyeq		\barwedge	barwedge
\leftleftarrows	leftleftarrows	\leqq		\barwedge	doublebarwedge
\rightrightarrows	rightrightarrows	\leqslant		\angle	angle
\upuparrows	upuparrows	\lessgtr		\measuredangle	measuredangle
\downdownarrows	downdownarrows	\backprime		\sphericalangle	sphericalangle
\upharpoonright	upharpoonright	\risingdotseq		\varpropto	varpropto
\downharpoonright	downharpoonright	\fallingdotseq		\smallsmile	smallsmile
\upharpoonleft	upharpoonleft	\succcurlyeq		\smallfrown	smallfrown
\downharpoonleft	downharpoonleft	\geqq		\Subset	Subset
\rightarrowtail	rightarrowtail	\geqslant		\Supset	Supset
\leftarrowtail	leftarrowtail	\gtrless		$\mathcal{C}up$	Cup
\leftrightarrowtail	leftrightarrows	\sqsubset		$\mathcal{C}ap$	Cap
\rightleftarrows	rightleftarrows	\sqsupset		$\mathcal{C}urlywedge$	curlywedge
\Lsh	Lsh	\vartriangleright		$\mathcal{C}urlyvee$	curlyvee
\Rsh	Rsh	\vartriangleleft		\leftthreetimes	leftthreetimes
\rightsquigarrow	rightsquigarrow	\trianglerighteq		\rightthreetimes	rightthreetimes
\rightsquigarrow	leftrightsquigarrow				

≤	subsepeqq	≥	ngeqq	≄	nLeftarrow
≥	supsepeqq	≤	precneqq	≆	nRightarrow
≤	bumpEq	≥	succneqq	≇	nLeftrightarrow
≥	BumpEq	≤	precnapprox	≈	nlefrightharpoonup
⋘	lll	⋙	succnapprox	*	divideontimes
⋙	ggg	⋘	lnapprox	∅	varnothing
◎	circledS	⋙	gnapprox	#	nexists
⋮	pitchfork	⋘	nsim	⊤	Finv
+	dotplus	⋙	ncong	⊤	Game
⤒	backsim	⤒	diagup	⤓	mho
⤒	backsimeq	⤒	diagdown	⤓	eth
□	complement	⤒	varsubsetneq	⤒	eqsim
⊤	intercal	⤒	varsupsetneq	⤒	beth
◎	circledcirc	⤒	nsubseteqq	⤒	gimel
⊗	circledast	⤒	nsupseteqq	⤒	daleth
⊖	circleddash	⤒	subsetneqq	⤒	lessdot
⤒	lvertneqq	⤒	supsetneqq	⤒	grdot
⤒	gvertneqq	⤒	varsupsetneqq	⤒	ltimes
⤒	nleq	⤒	varsupsetneqq	⤒	rtimes
⤒	ngeq	⤒	subsetneq	⤒	shortmid
⤒	nless	⤒	supsetneq	⤒	shortparallel
⤒	ngtr	⤒	nsubseteq	⤒	smallsetminus
⤒	nprec	⤒	nsupseteq	⤒	thicksim
⤒	nsucc	⤒	nparallel	⤒	thickapprox
⤒	lneqq	⤒	nmid	⤒	approxeq
⤒	gneqq	⤒	nshortmid	⤒	succapprox
⤒	nleqslant	⤒	nshortparallel	⤒	precapprox
⤒	ngeqslant	⤒	nvdash	⤒	curvearrowleft
⤒	lneq	⤒	nVdash	⤒	curvearrowright
⤒	gneq	⤒	nvDash	⤒	digamma
⤒	npreceq	⤒	nVDash	⤒	varkappa
⤒	nsucceq	⤒	ntrianglerighteq	⤒	Bbbk
⤒	precnsim	⤒	ntrianglelefteq	⤒	hslash
⤒	succnsim	⤒	ntriangleleft	⤒	hbar
⤒	lnsim	⤒	ntriangleright	⤒	backepsilon
⤒	gnsim	⤒	nleftarrow		
⤒	nleqq	⤒	nrightarrow		