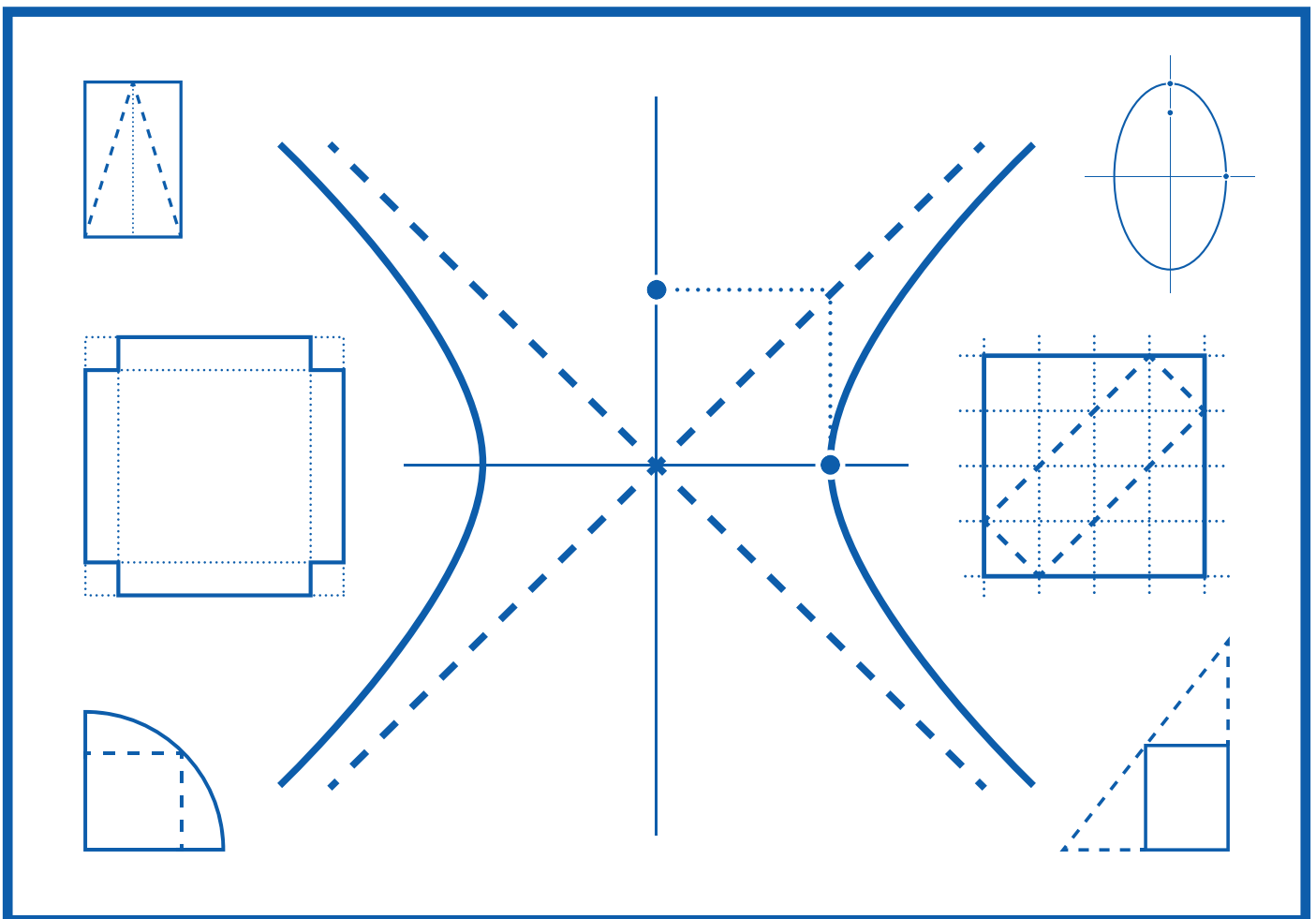




Grafikkatalog

11. Schulstufe (7. AHS)

Autor: Elisabeth Stanetty • Grafiken: Tomáš Batha





Grafikkatalog

11. Schulstufe (7. AHS)

11



1.1

1.2

1.3

Inhalt

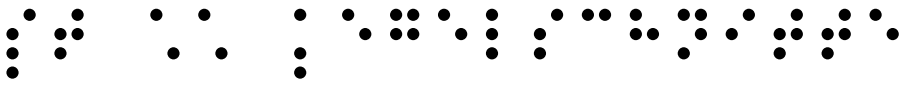
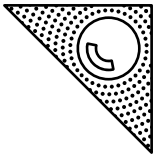
- 1** Kegelschnitte
- 2** Extremwertaufgaben

Kegelschnitte

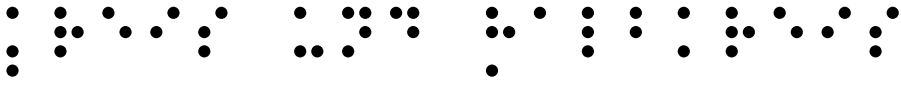
Schulstufe 11

Inhalt

- 1** Kreis und Halbkreis
- 2** Kreis und Gerade
- 3-4** Kreis - Tangenten
- 4** Schnittwinkel
- 5** Schnittgerade
- 5** Konzentrische Kreise
- 6-7** Mehrere Kreise
- 8** Kreisgleichungen
- 9** Ellipse in 1. Hauptlage
- 10** Ellipse in 2. Hauptlage
- 11-12** Ellipse - Tangenten
- 13** Hyperbel in 1. Hauptlage
- 14** Hyperbel in 2. Hauptlage
- 15** Hyperbel - Asymptoten
- 16-18** Hyperbel - Tangenten
- 19** Parabel
- 20-21** Parabel - Tangenten



St 11 Kegelschnitte, 1/21

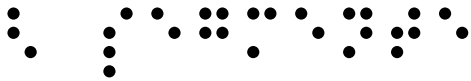
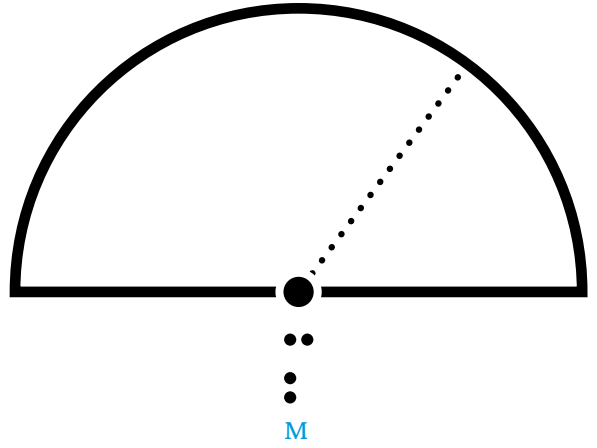
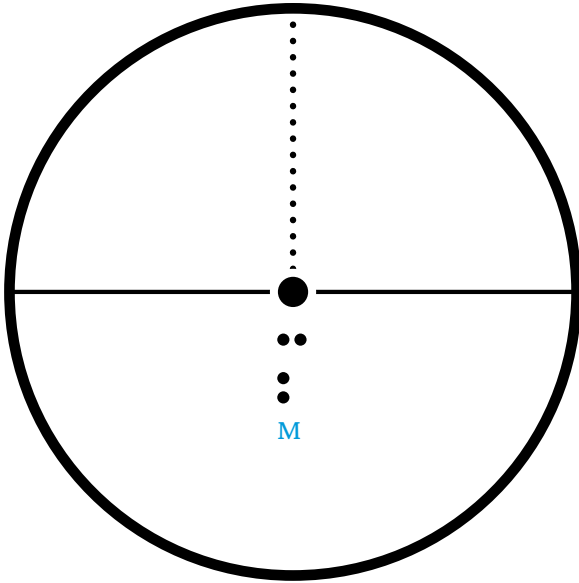


Kreis und Halbkreis



r:

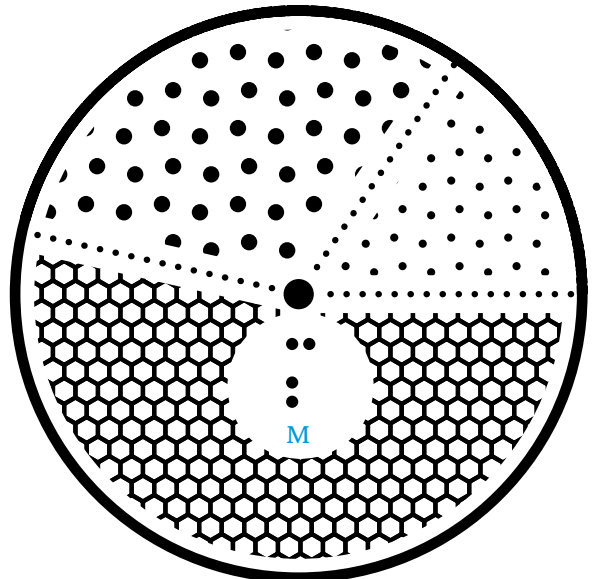
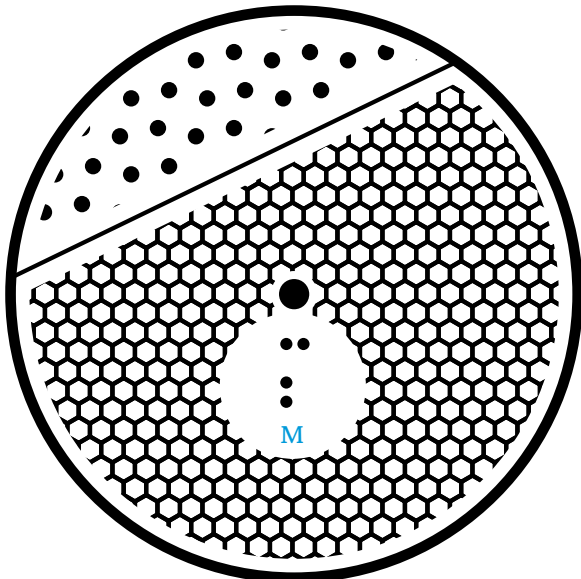
d:

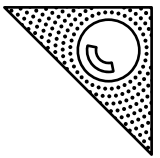
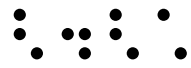
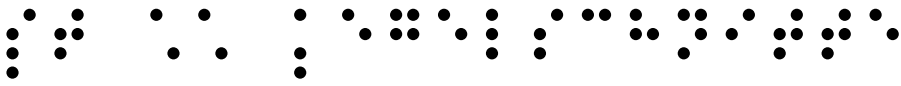


2 Segmente

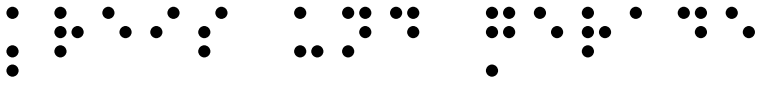


3 Sektoren





St 11 Kegelschnitte, 2/21



Kreis und Gerade



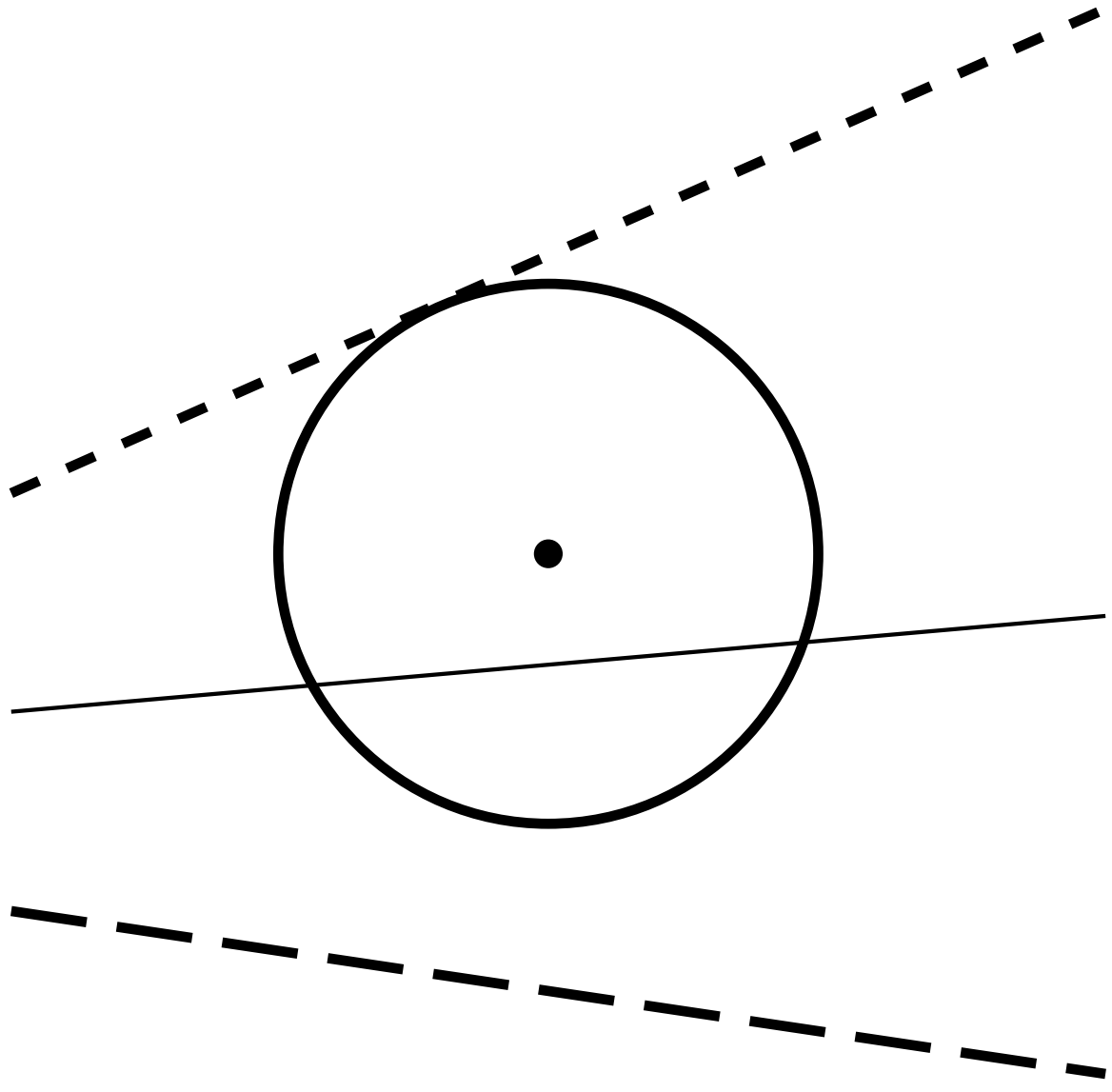
Sekante:



Passante:

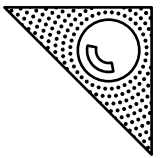


Tangente:



Braille text: St 11 Kegelschnitte, 3/21

Braille text: 3/21



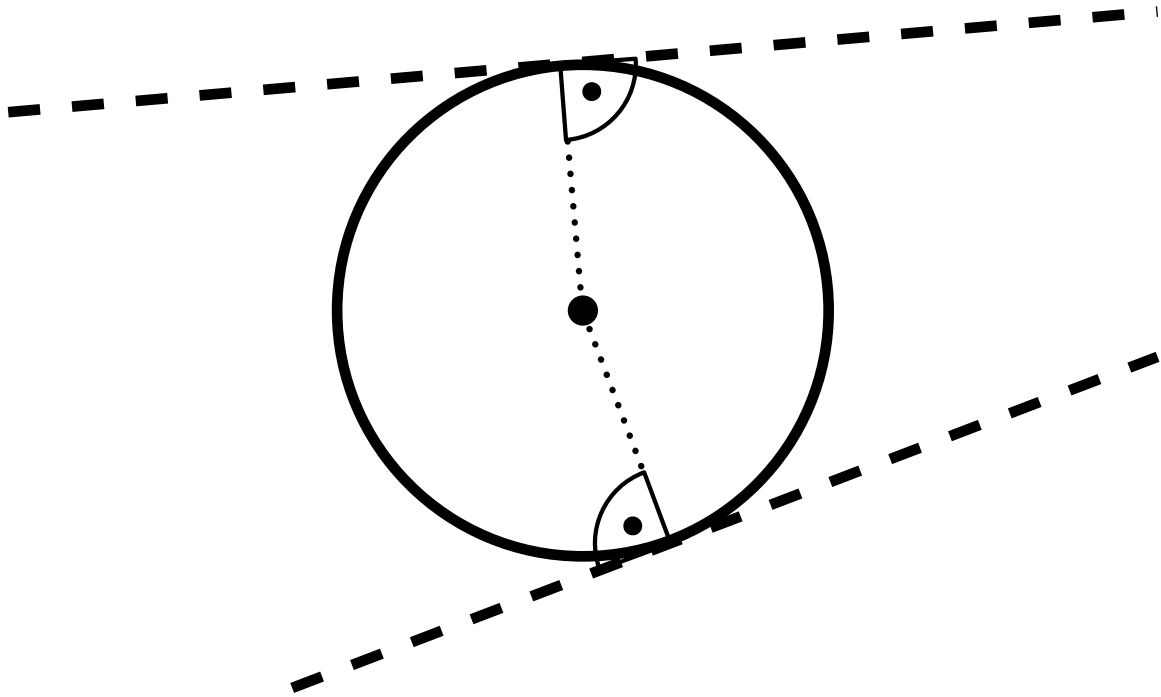
St 11 Kegelschnitte, 3/21

Braille text: Kreistangenten

Kreistangenten

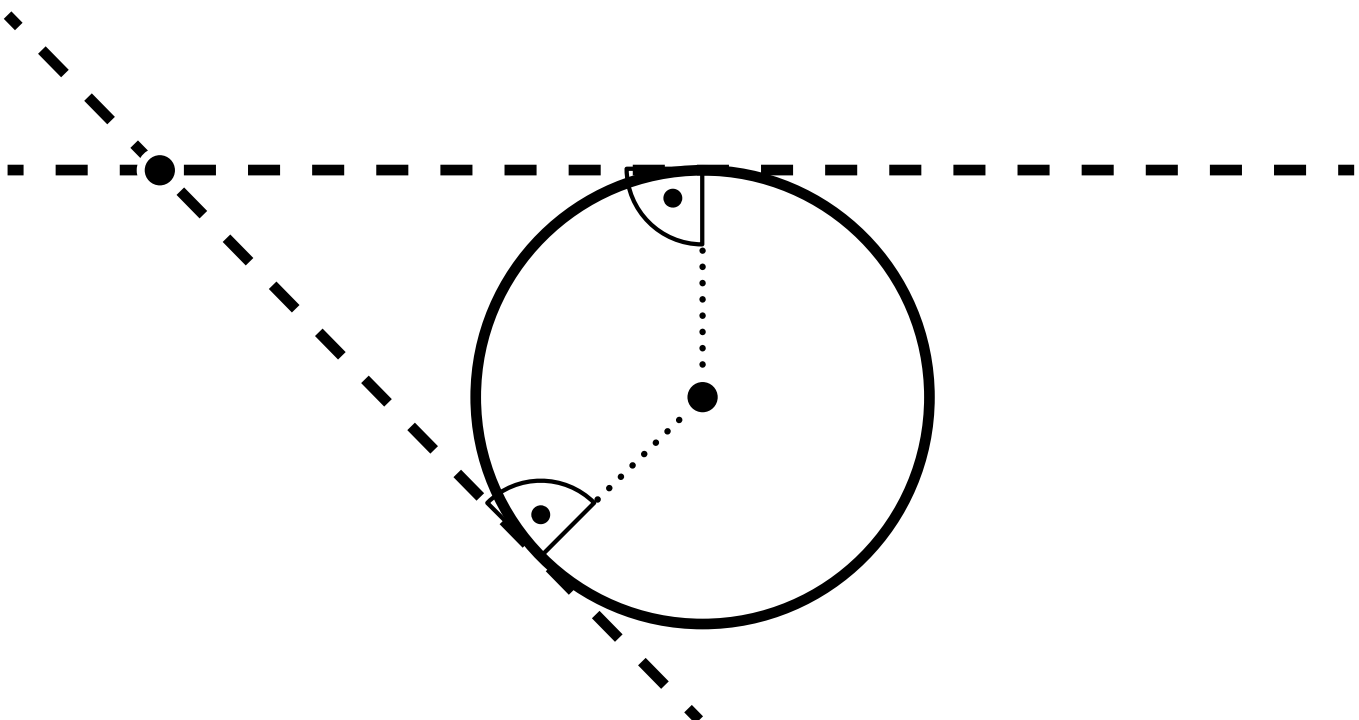
Braille text: 1) Tangenten in Punkten

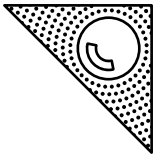
1) Tangenten in Punkten



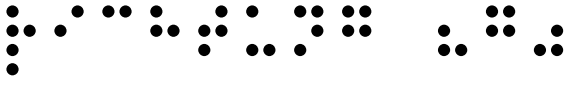
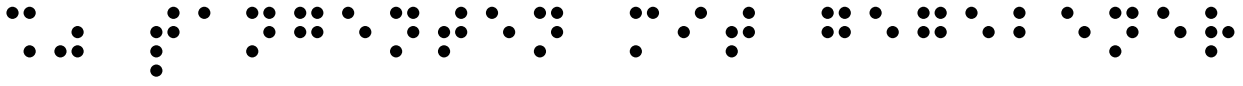
Braille text: 2) Tangenten aus einem Punkt

2) Tangenten aus einem Punkt

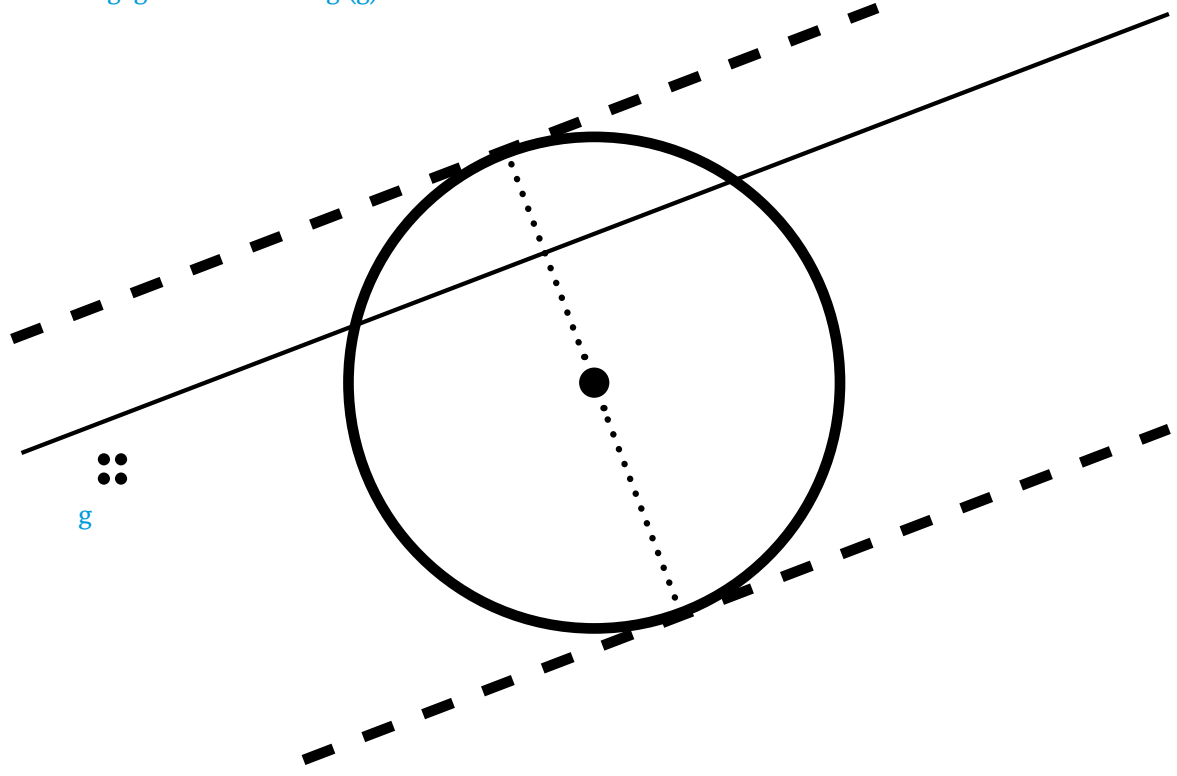




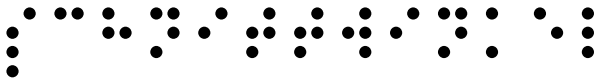
St 11 Kegelschnitte, 4/21



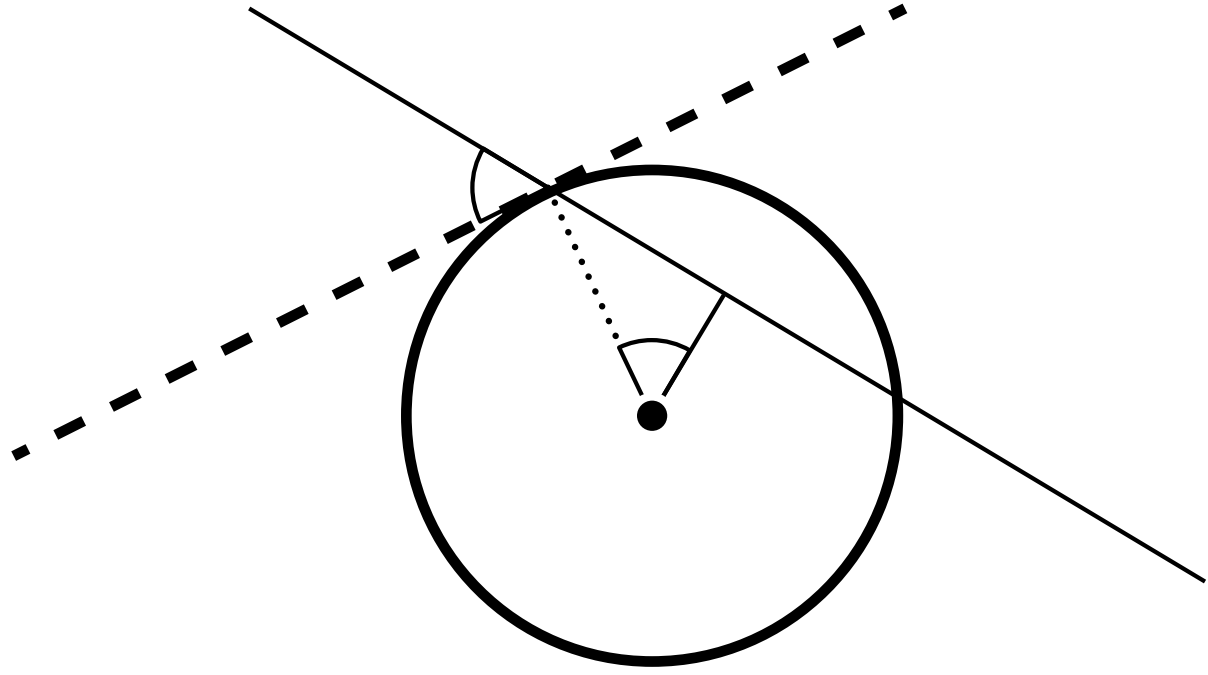
3) Tangenten mit gegebener Richtung (g)

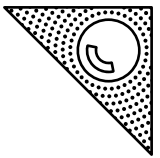
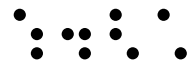
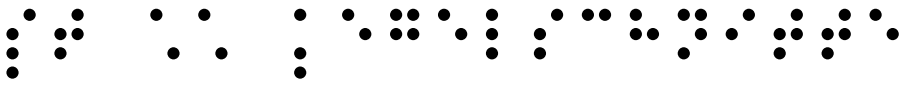


g

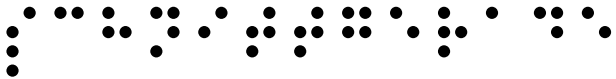


Schnittwinkel

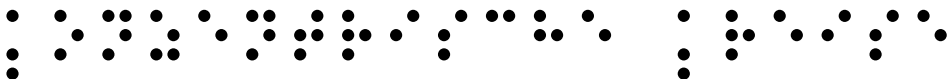
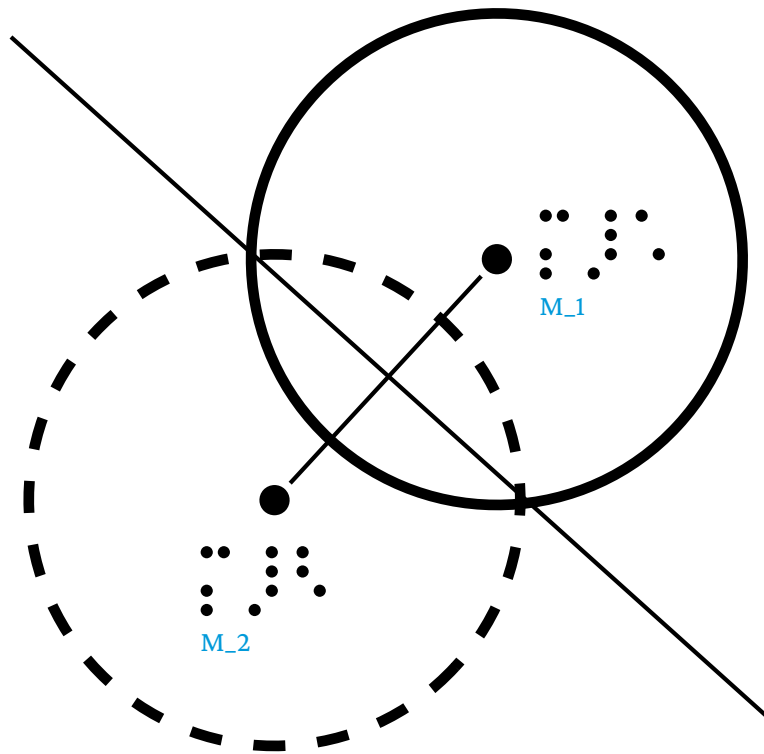




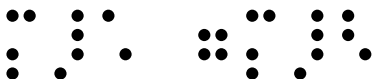
St 11 Kegelschnitte, 5/21



Schnittgerade



Konzentrische Kreise



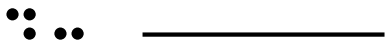
$M_1 = M_2$



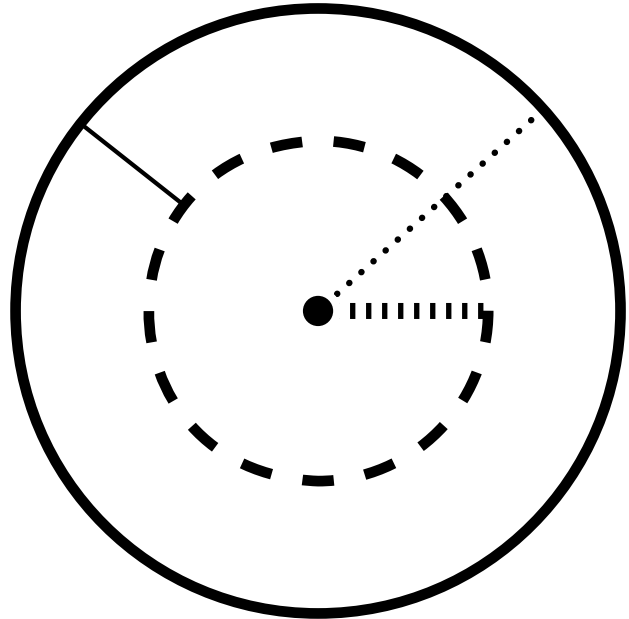
$r_1:$

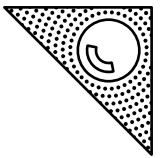
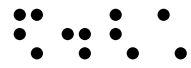
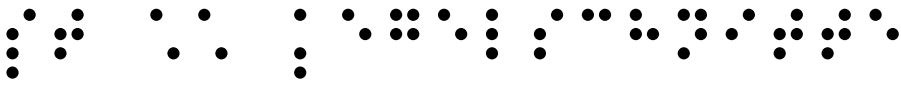


$r_2:$



$d:$





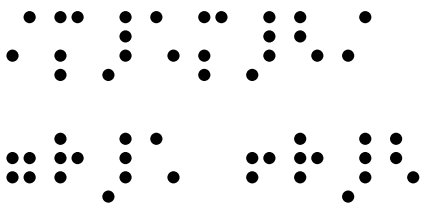
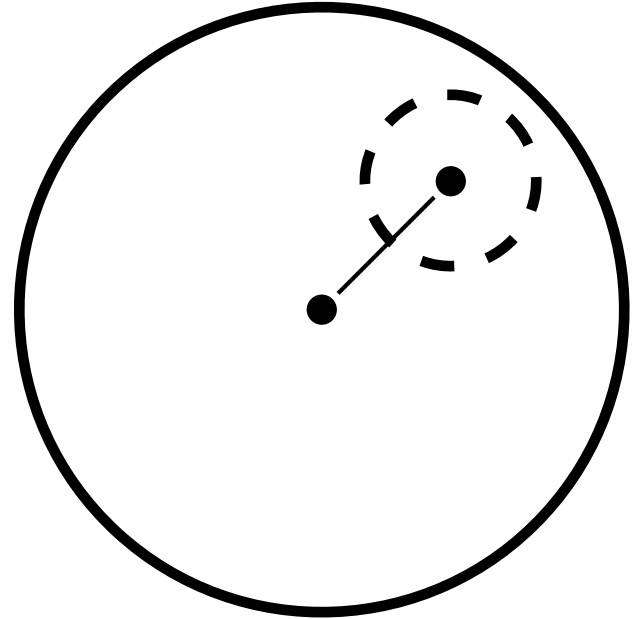
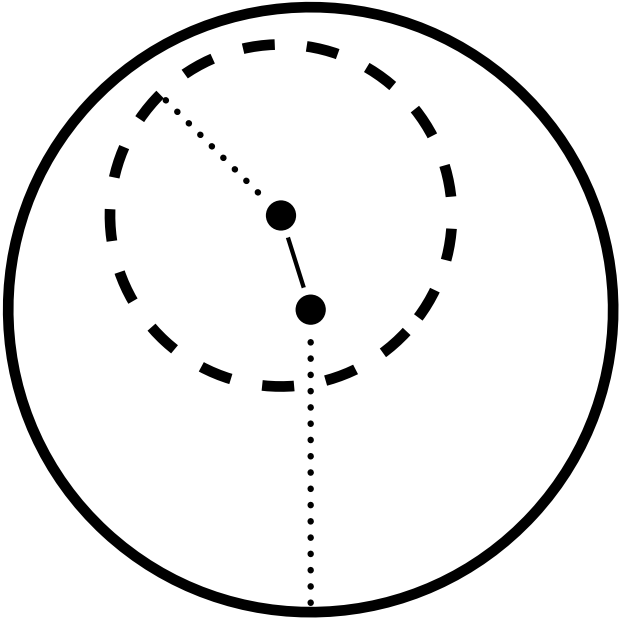
St 11 Kegelschnitte, 6/21



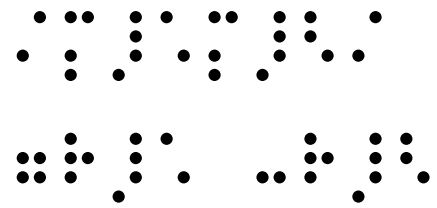
Mehrere Kreise



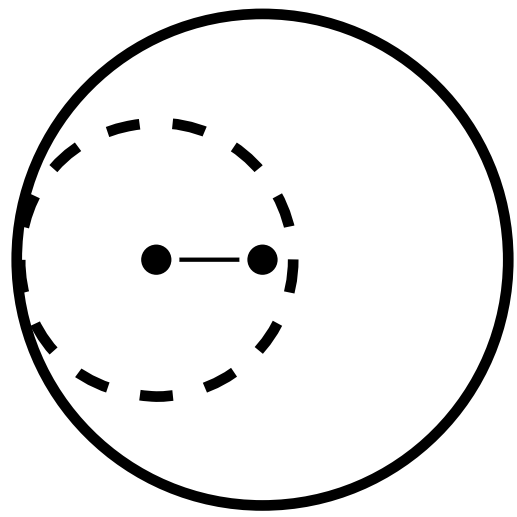
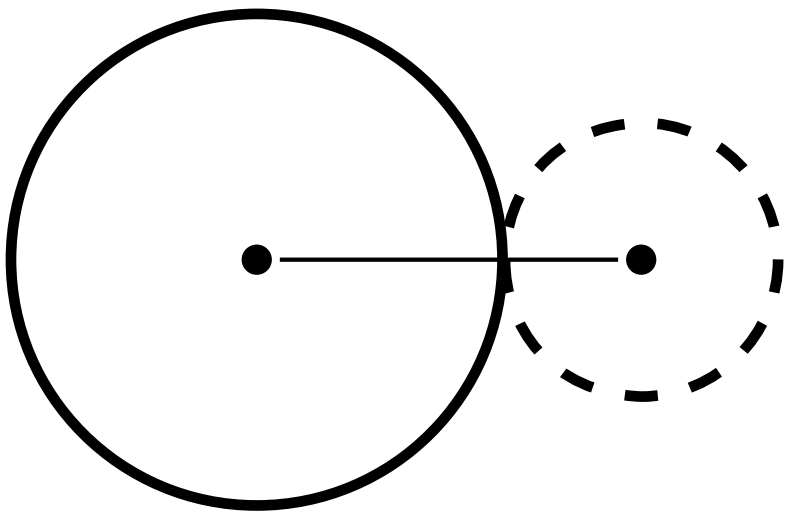
|M₁M₂|:

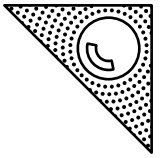
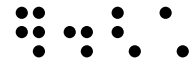
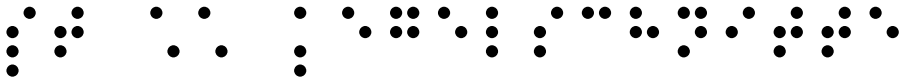


|M₁M₂| = r₁ + r₂

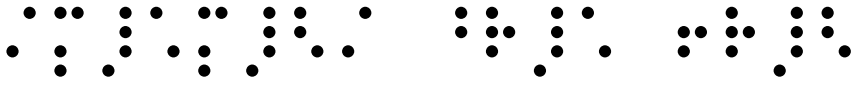


|M₁M₂| = r₁ - r₂

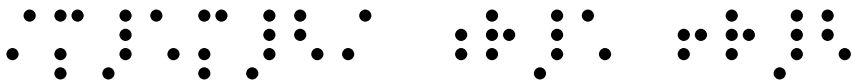
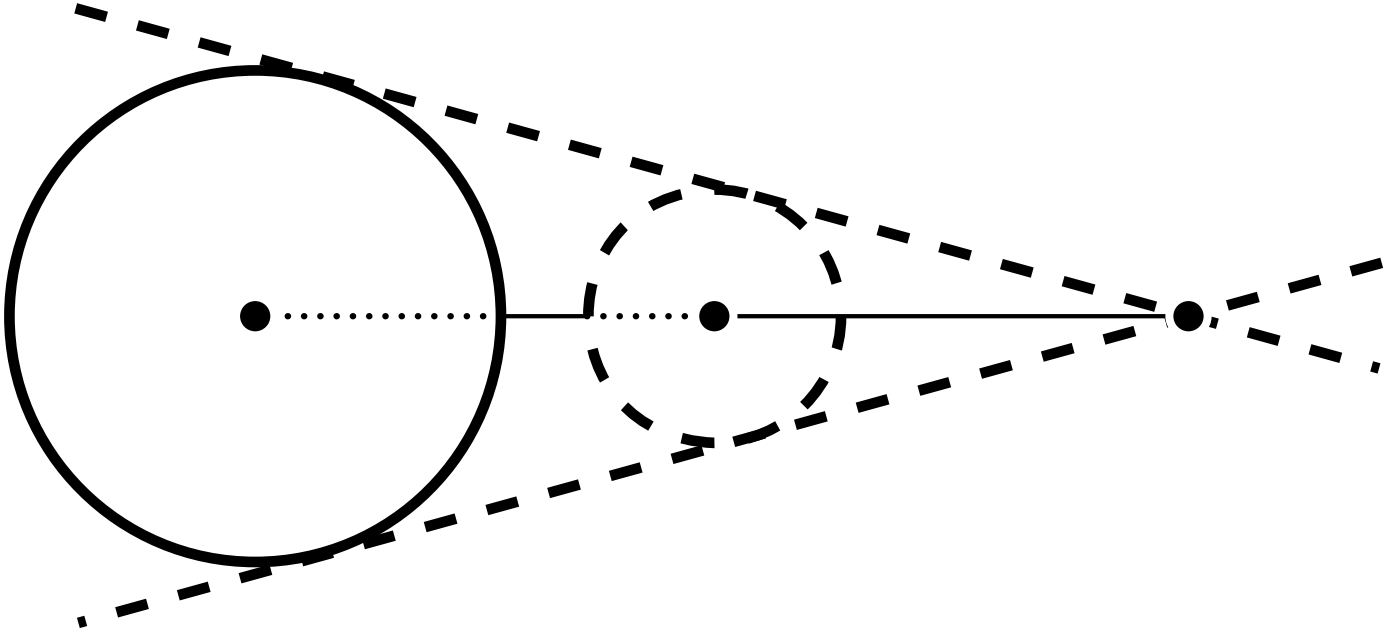




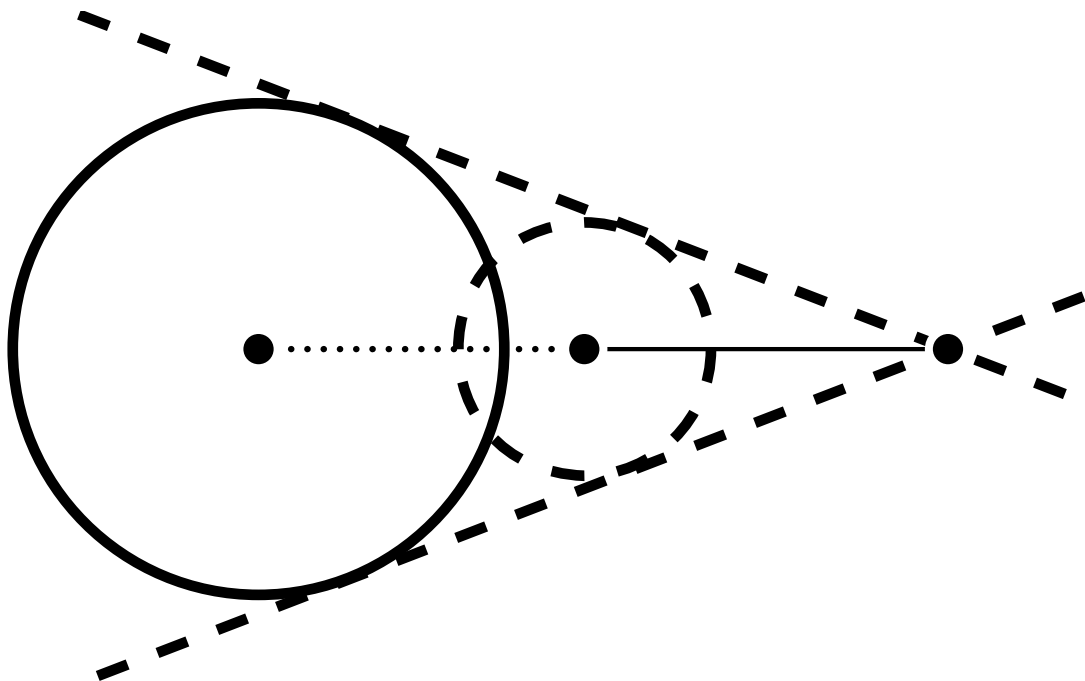
St 11 Kegelschnitte, 7/21

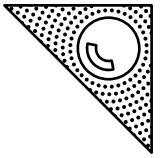


$|M_1M_2| > r_1 + r_2$



$|M_1M_2| < r_1 + r_2$





St 11 Kegelschnitte, 8/21

Kreis $x^2 + y^2 = r^2$

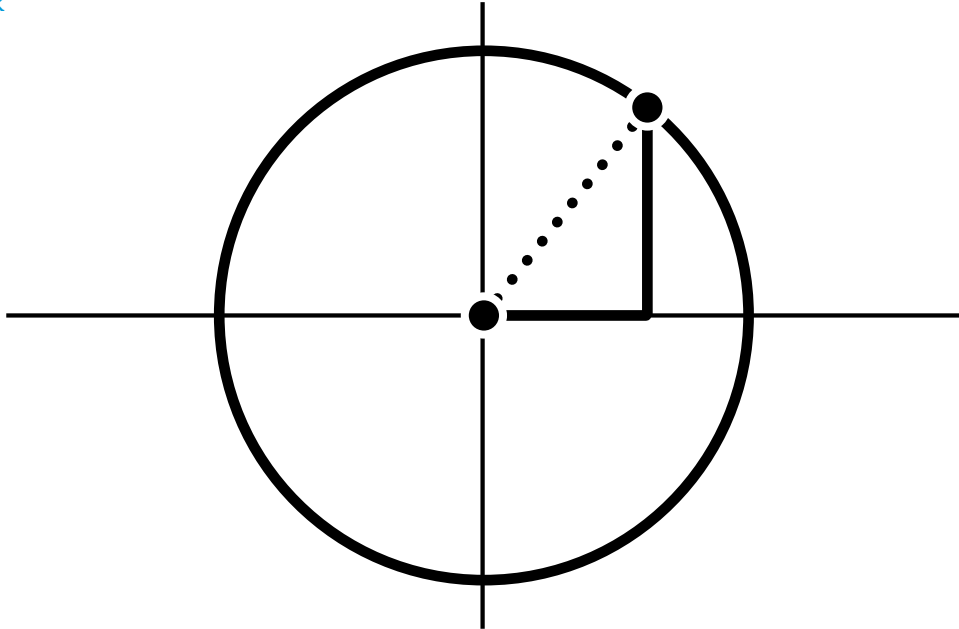
St 11 Kegelschnitte, 8/21

Kreis $x^2 + y^2 = r^2$

Kreis $x^2 + y^2 = r^2$

$M(0|0), P(x|y) \in k$

$M(0|0), P(x|y) \in k$

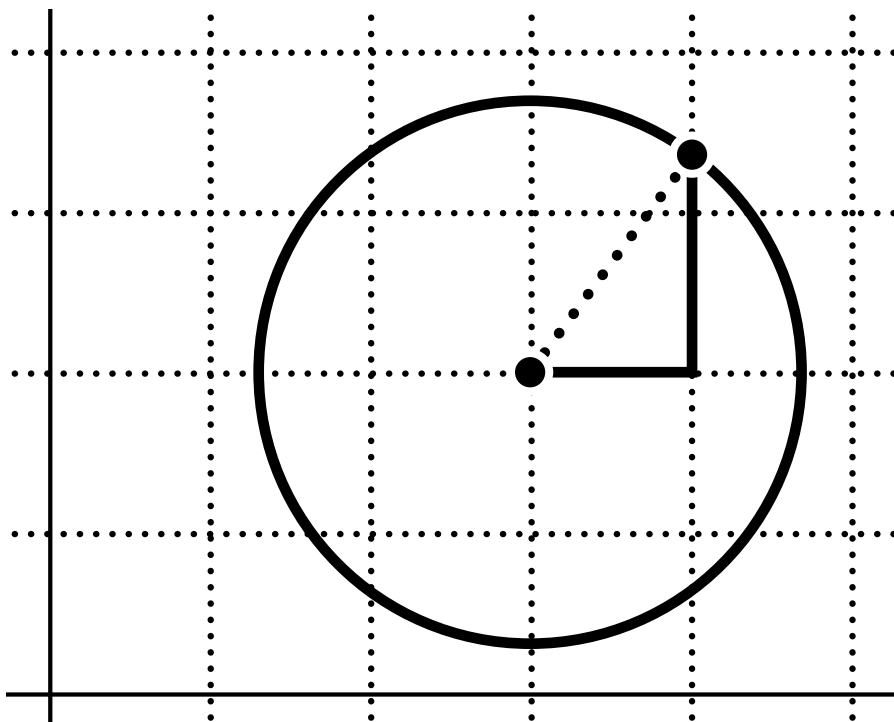


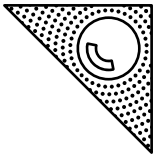
$M(u|v), P(x|y) \in k$

$M(u|v), P(x|y) \in k$

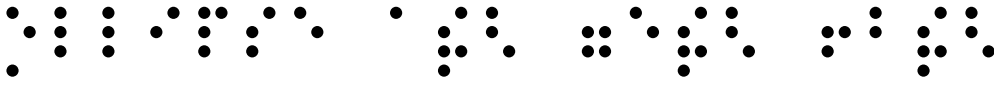
$(x - u)^2 + (y - v)^2 = r^2$

$(x - u)^2 + (y - v)^2 = r^2$

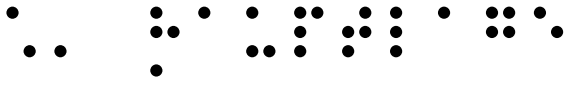




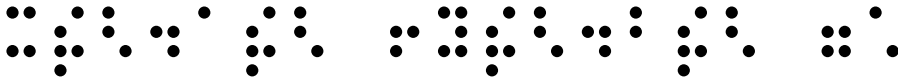
St 11 Kegelschnitte, 9/21



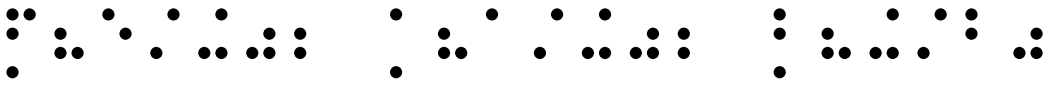
Ellipse $a^2 = e^2 + b^2$



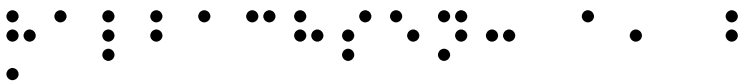
1. Hauptlage



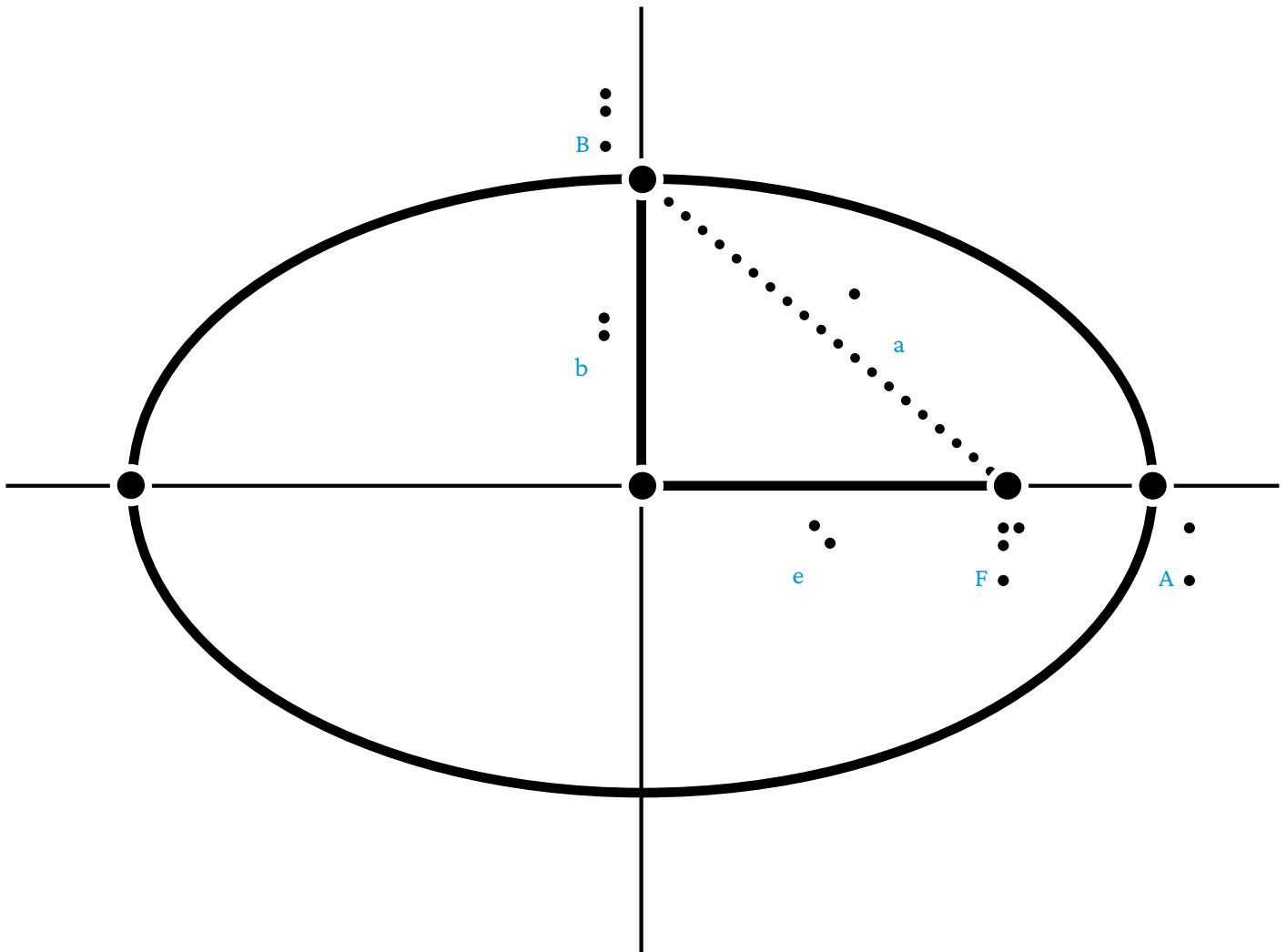
$x^2/a^2 + y^2/b^2 = 1$

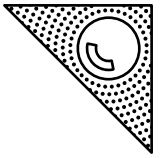


$F(e|0); A(a|0); B(0|b)$



Halbachsen: a, b

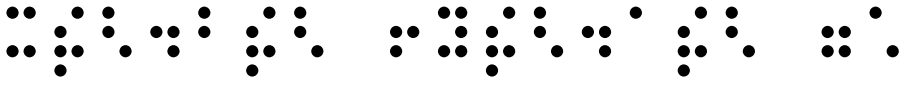




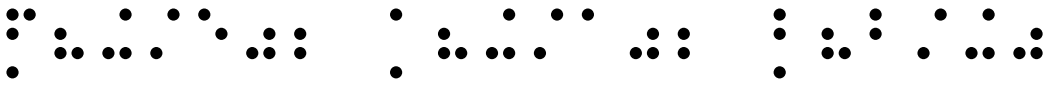
St 11 Kegelschnitte, 10/21



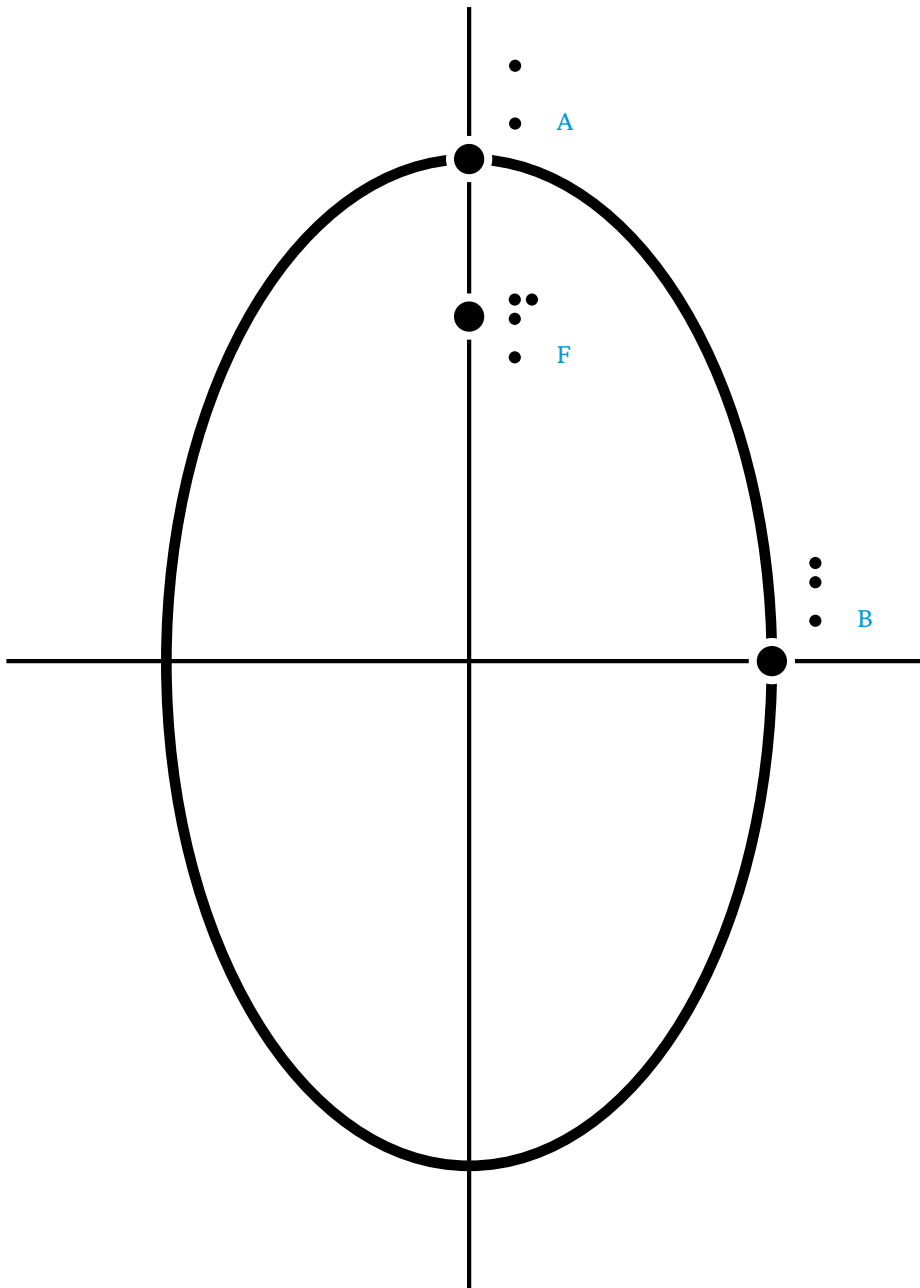
Ellipse - 2. Hauptlage

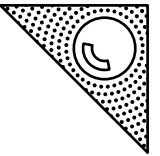


$x^2/b^2 + y^2/a^2 = 1$

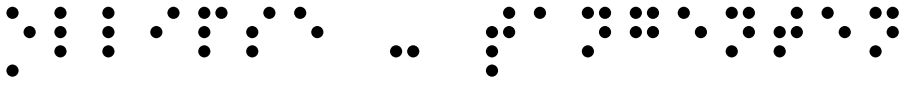


$F(0|e); A(0|a); B(b|0)$

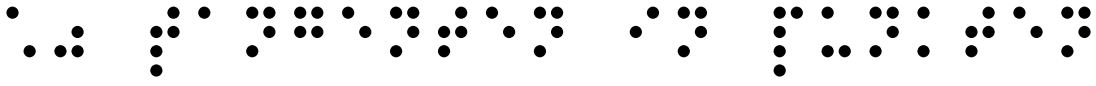




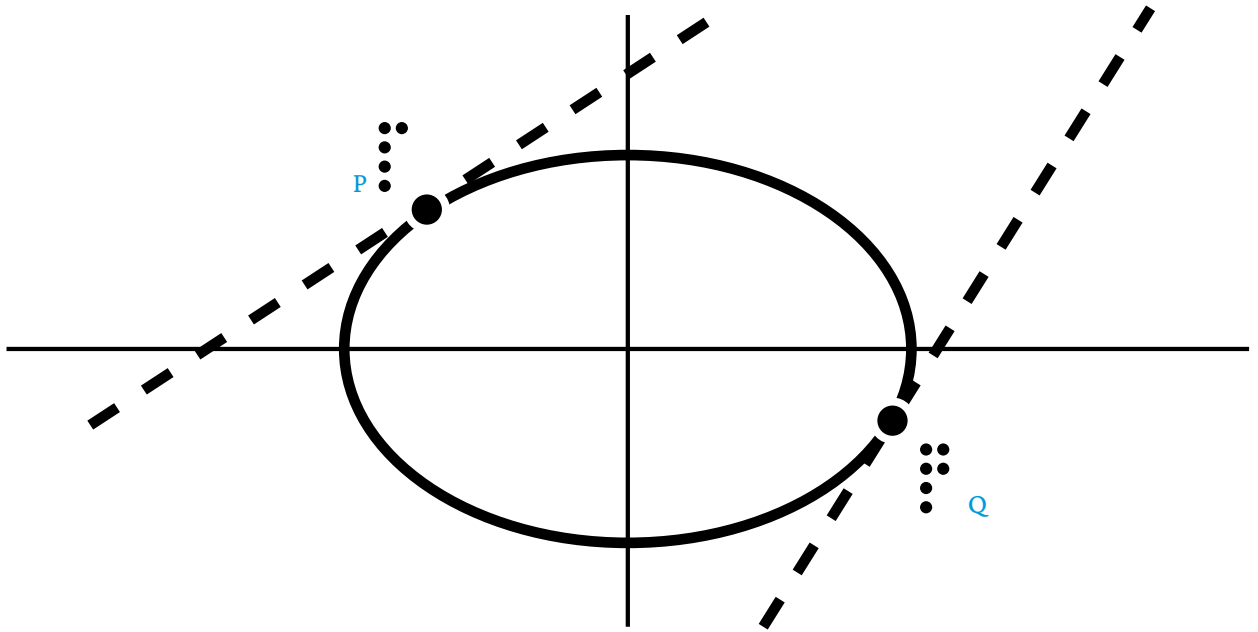
St 11 Kegelschnitte, 11/21



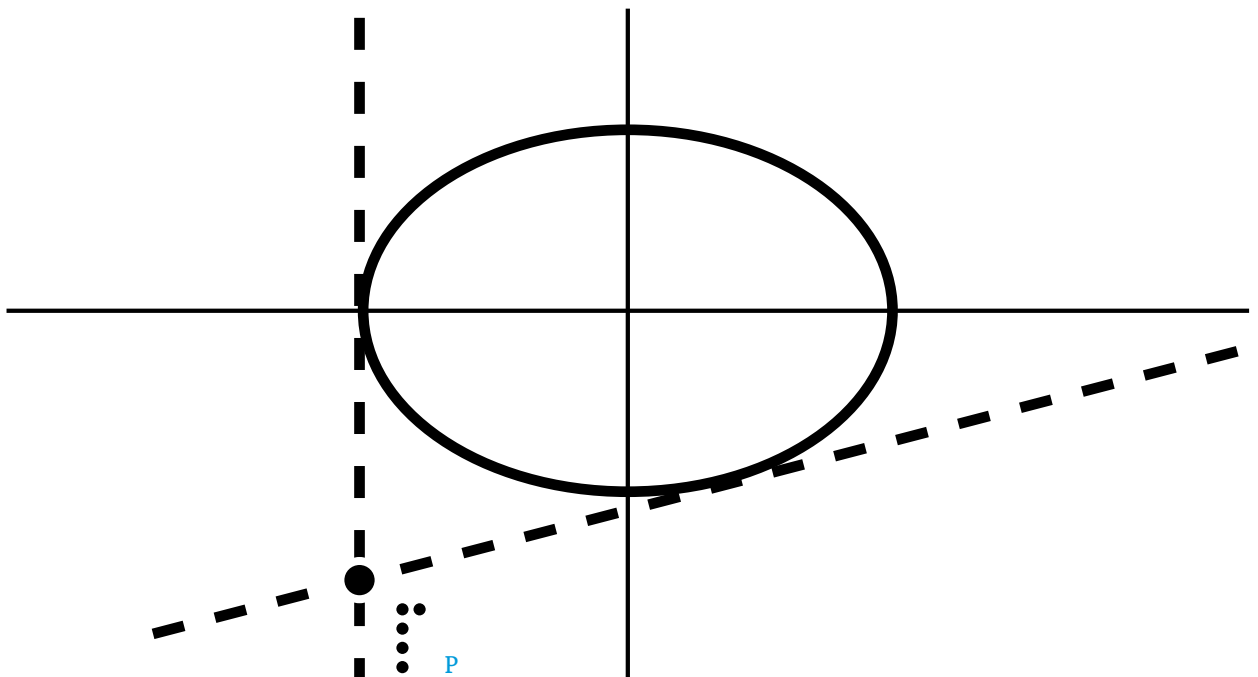
Ellipse - Tangenten

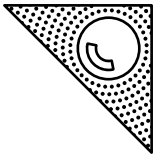


1) Tangenten in Punkten



2) Tangenten aus einem P

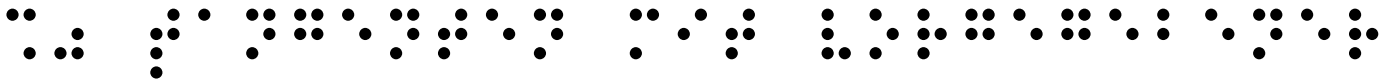




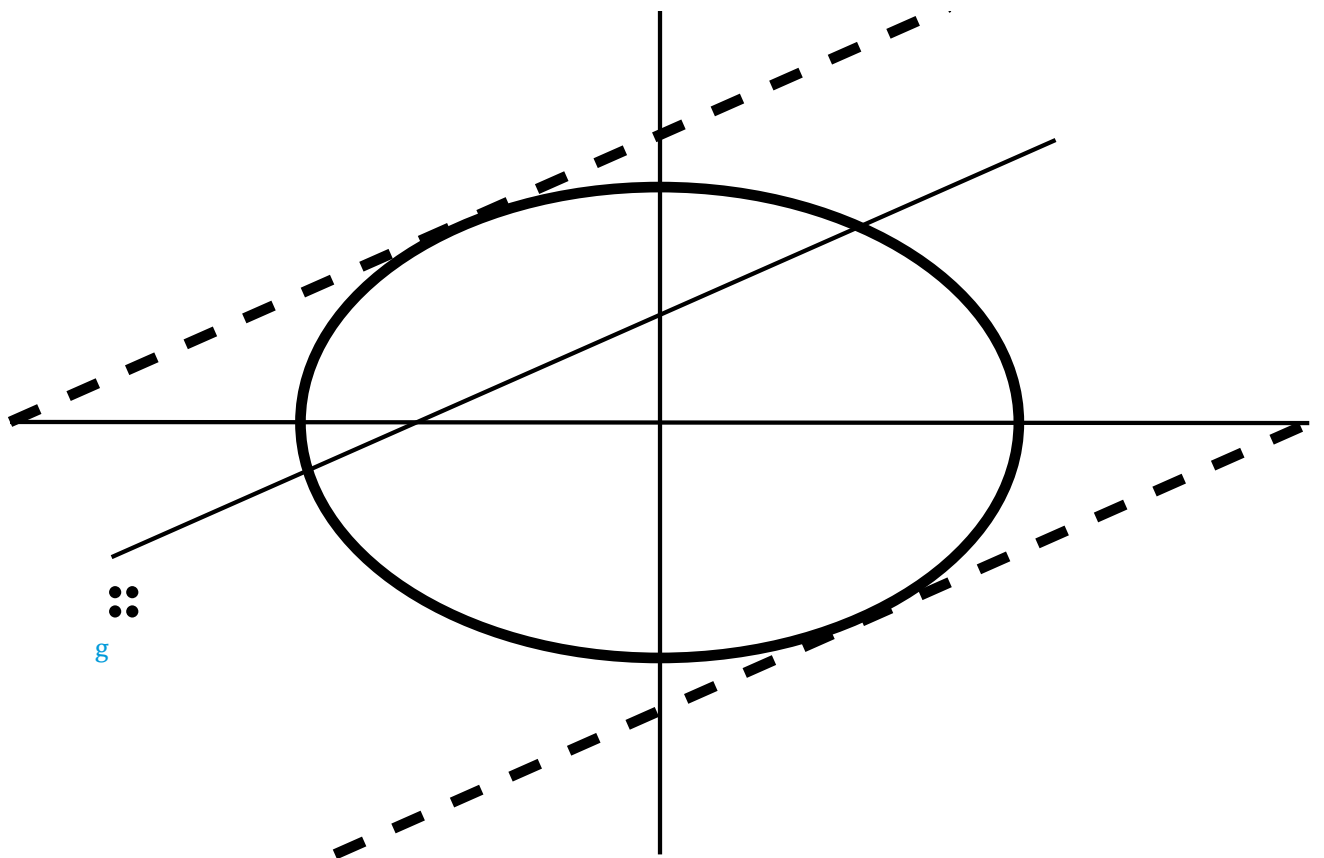
St 11 Kegelschnitte, 12/21

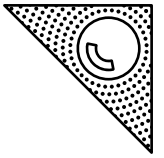


Ellipse



3) Tangenten mit vorgegebener Richtung (g)

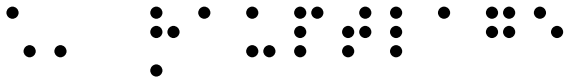




St 11 Kegelschnitte, 13/21



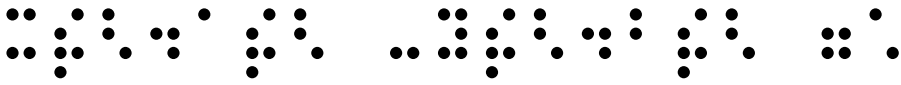
Hyperbel $e^2 = a^2 + b^2$



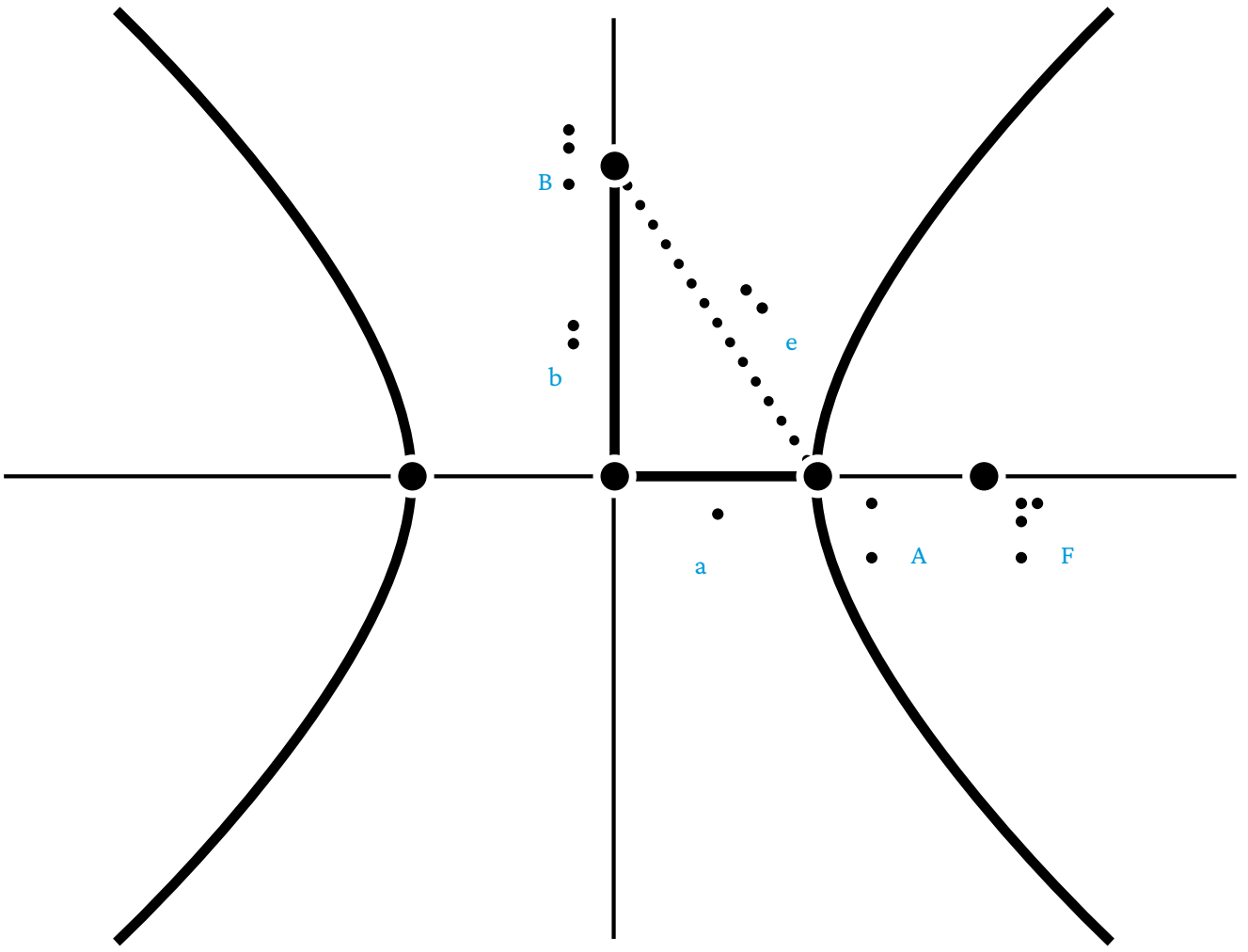
1. Hauptlage

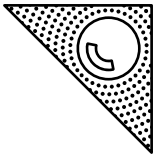


$F(e|0); A(a|0); B(0|b)$



$x^2/a^2 - y^2/b^2 = 1$

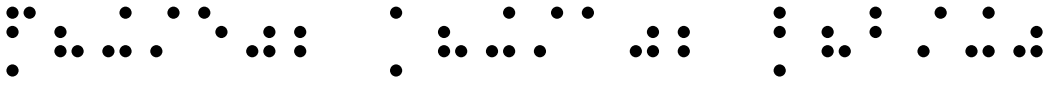




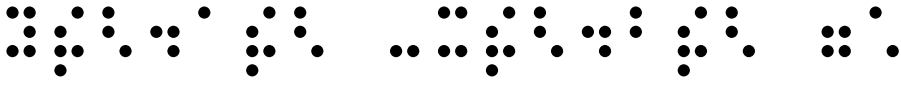
St 11 Kegelschnitte, 14/21



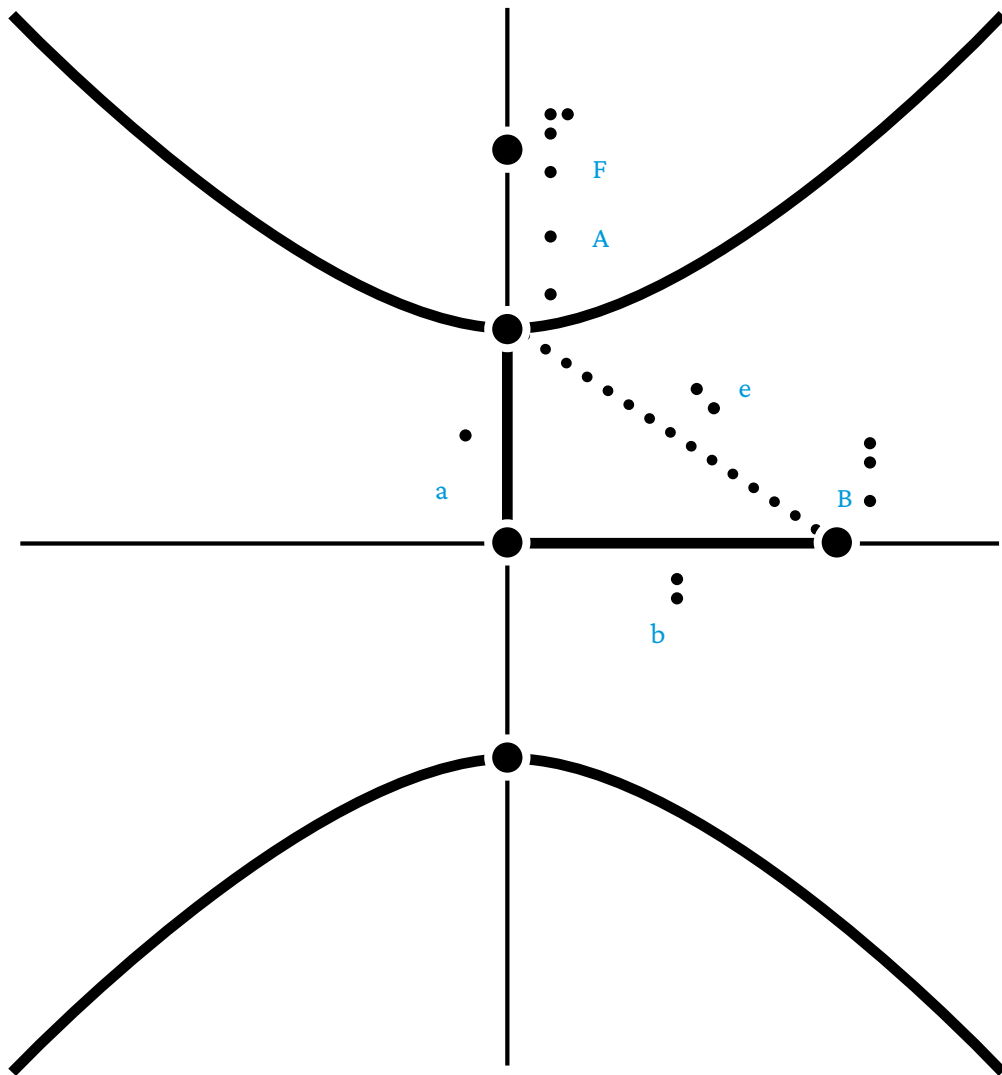
Hyperbel - 2. Hauptlage

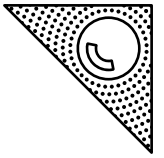


F(0|e); A(0|a); B(b|0)

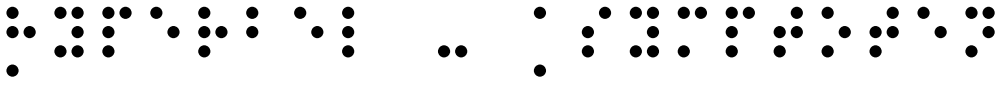


$y^2/a^2 - x^2/b^2 = 1$





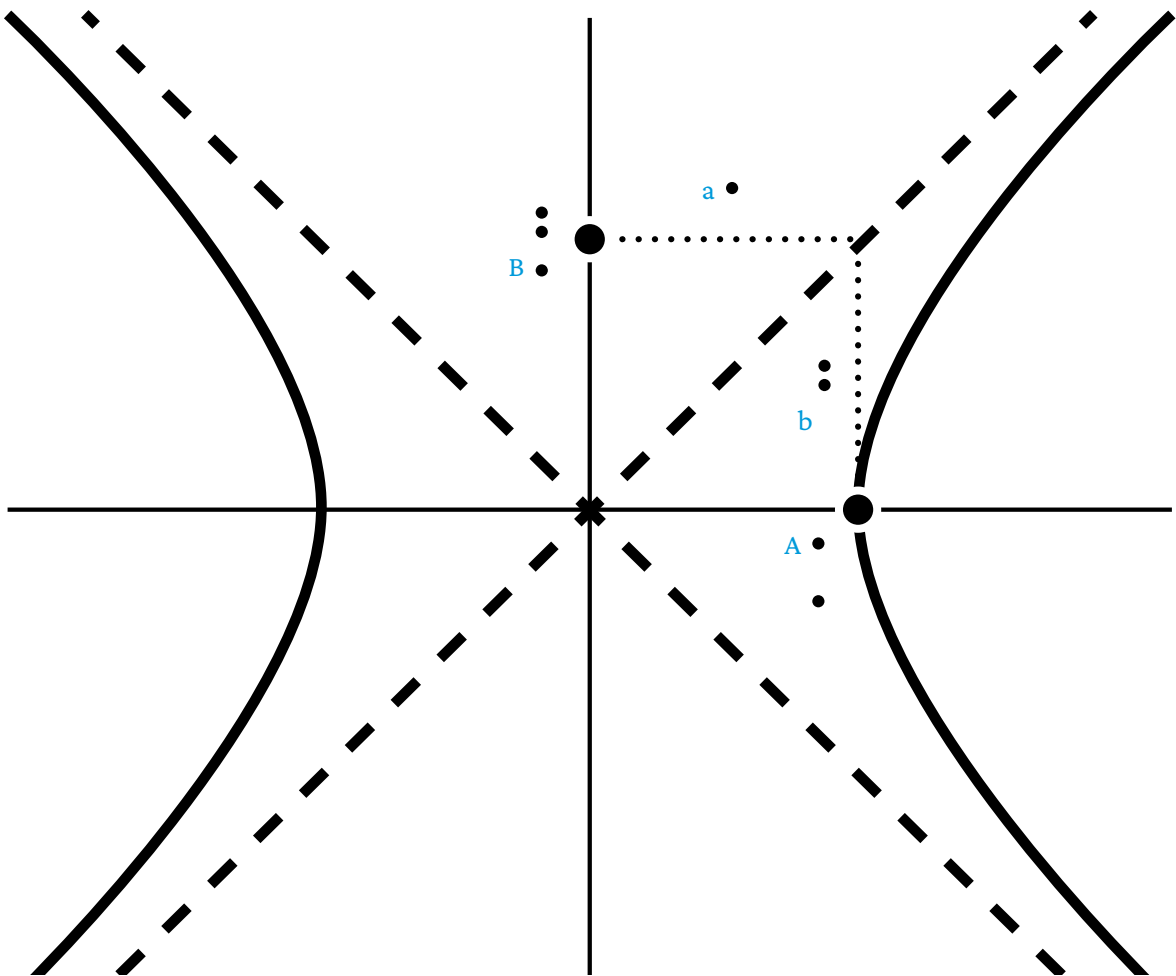
St 11 Kegelschnitte, 15/21

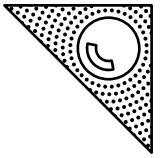


Hyperbel - Asymptoten



$y = \pm b/a * x$





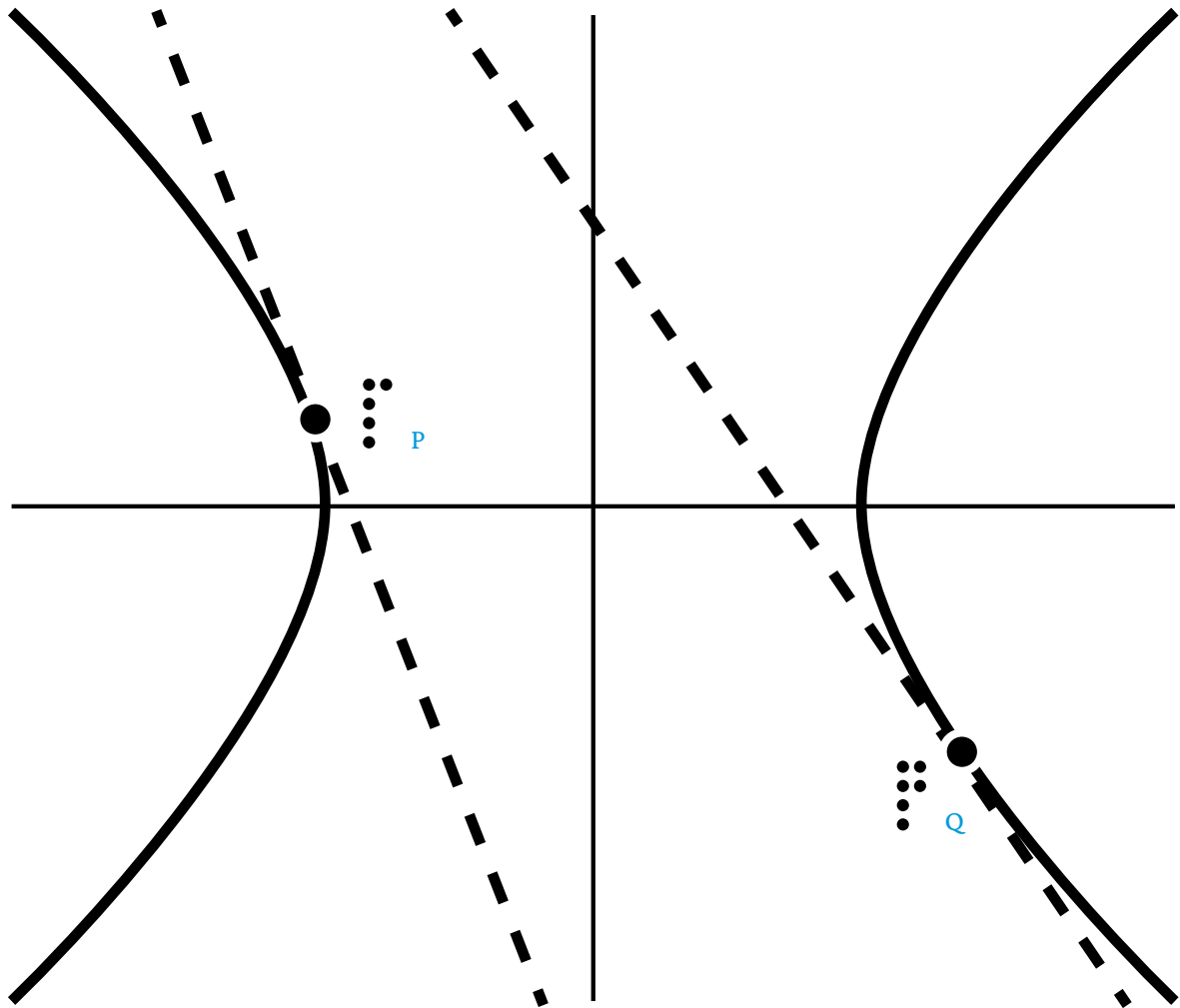
St 11 Kegelschnitte, 16/21



Hyperbel - Tangenten

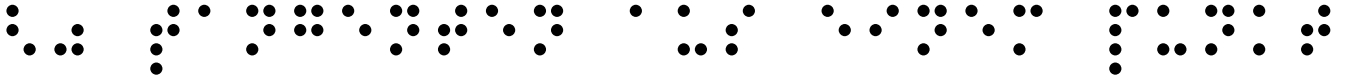
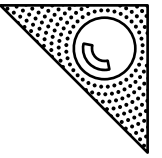


1) Tangenten in Punkten

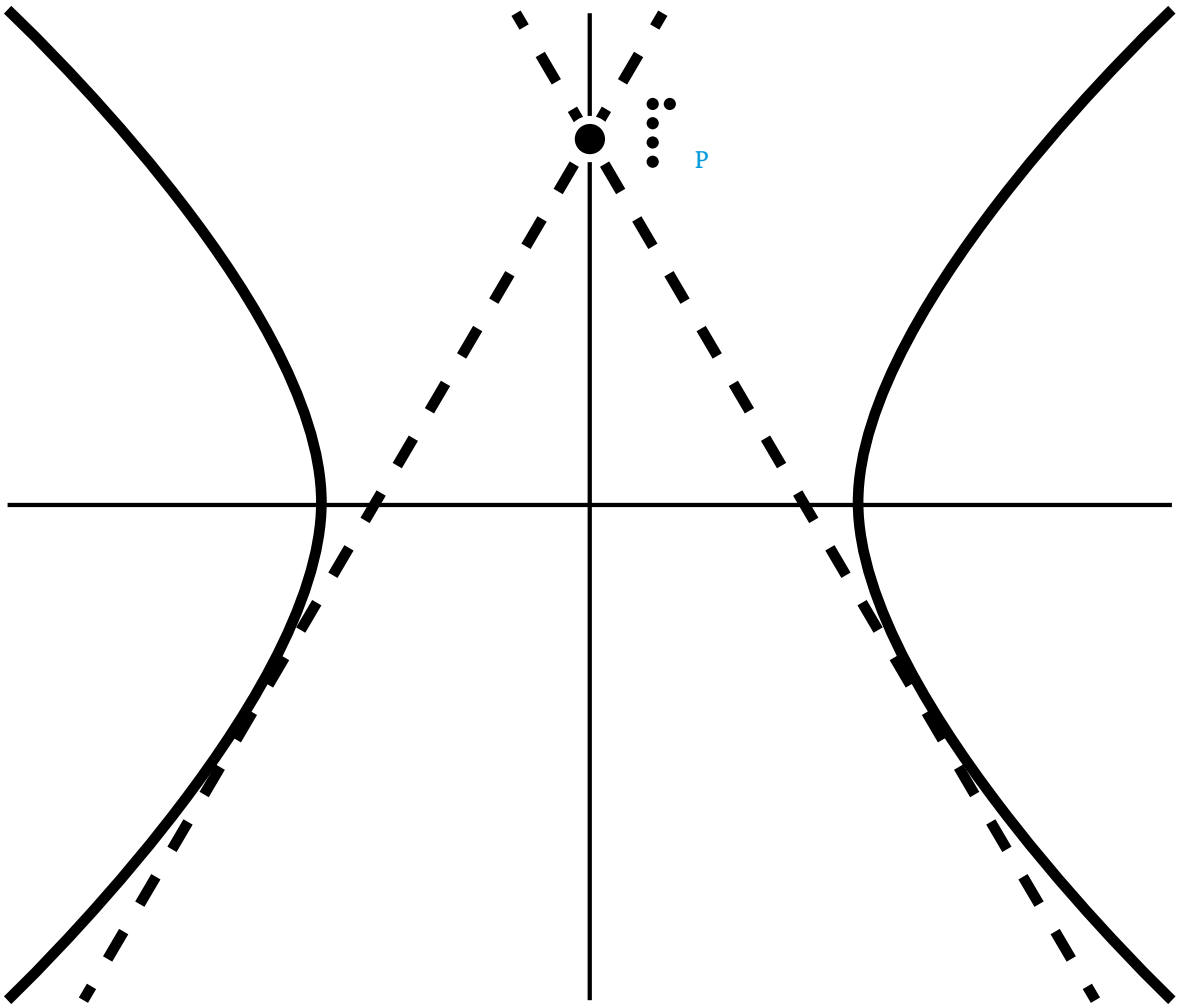




St 11 Kegelschnitte, 17/21

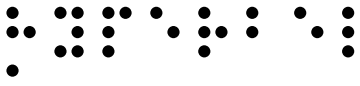
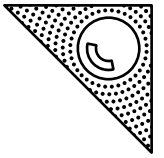


2) Tangenten aus einem Punkt

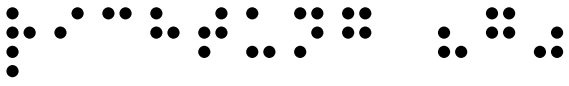




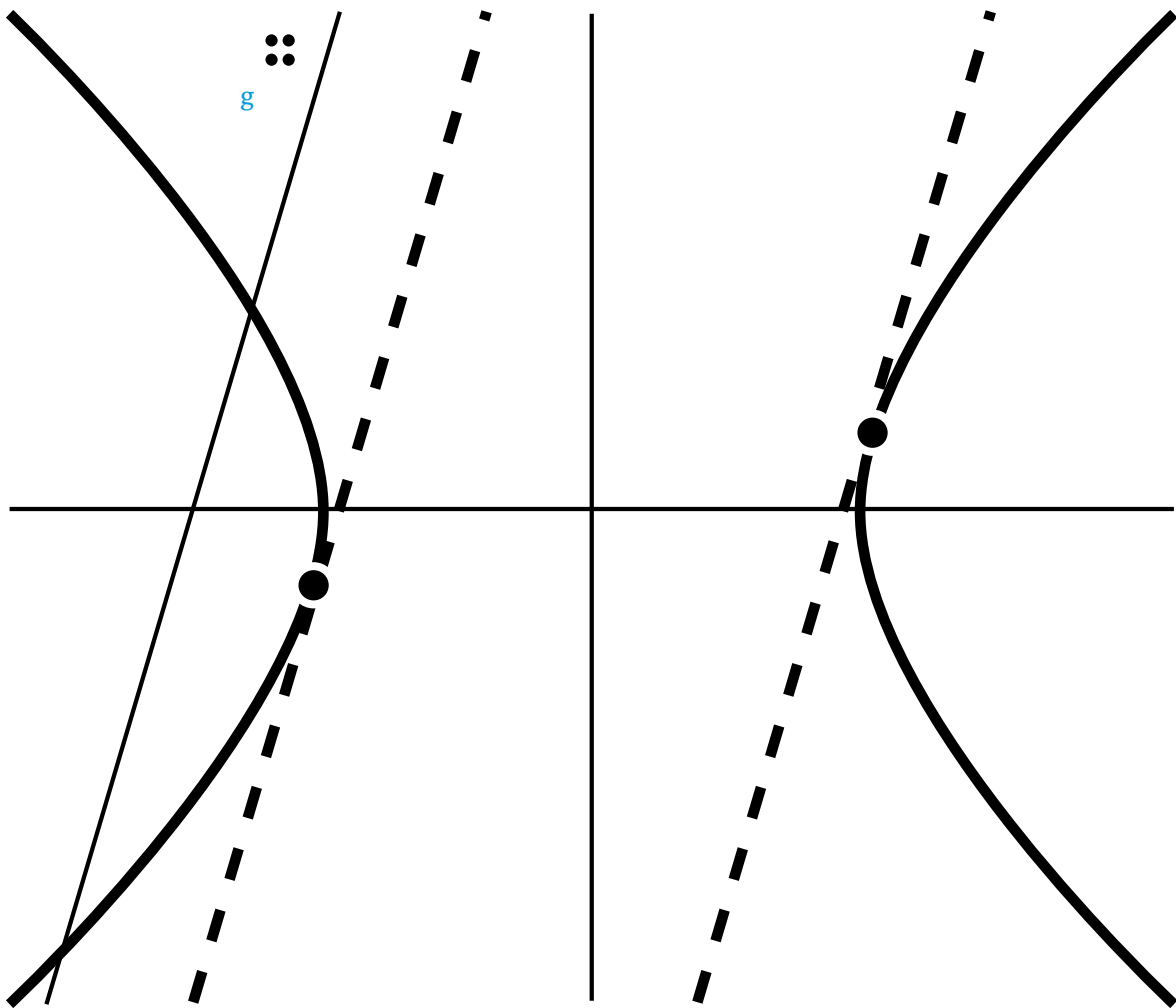
St 11 Kegelschnitte, 18/21

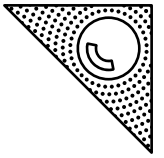


Hyperbel



3) Tangenten mit vorgegebener Richtung (g)





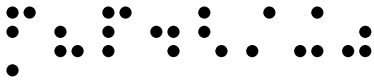
St 11 Kegelschnitte, 19/21



Parabel



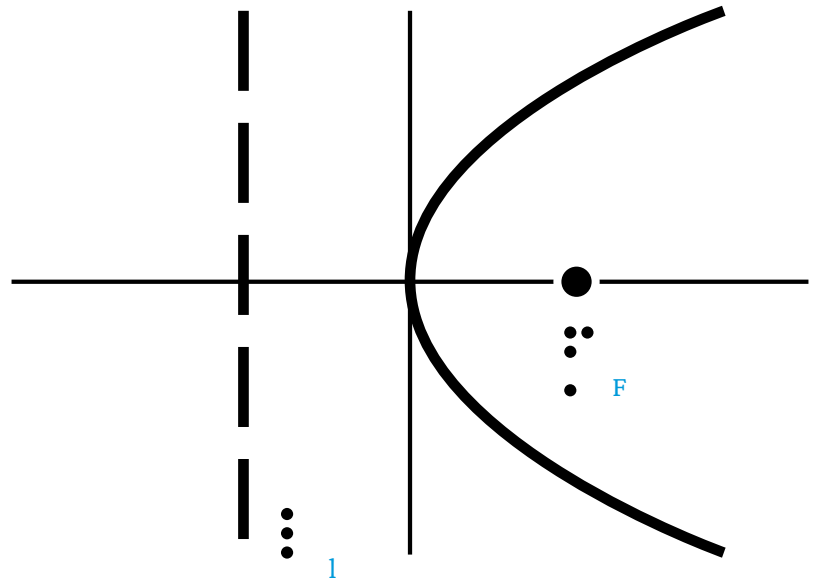
1. Hauptlage: $y^2 = 2px$;



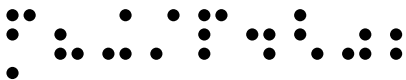
$F(p/2|0)$



$l: x = -p/2$



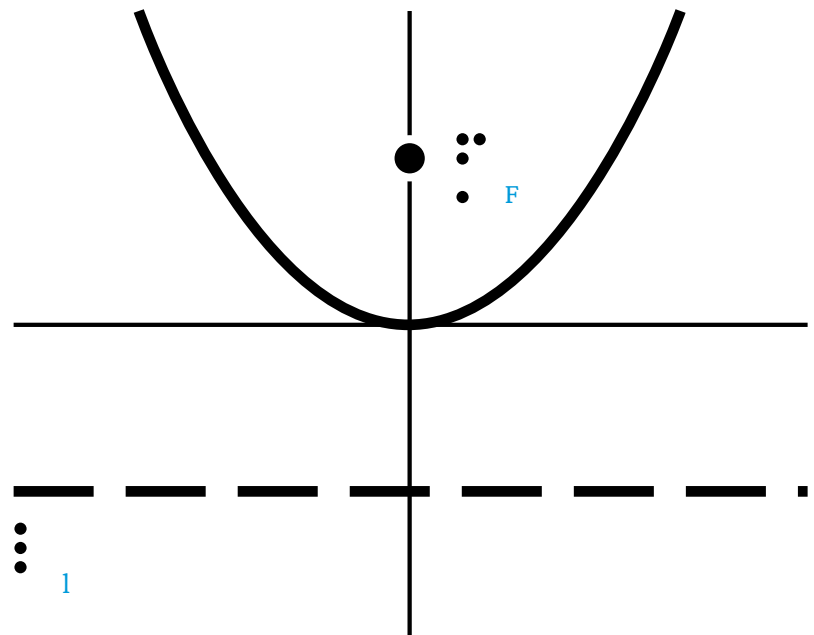
2. Hauptlage: $x^2 = 2py$;



$F(0|p/2)$;

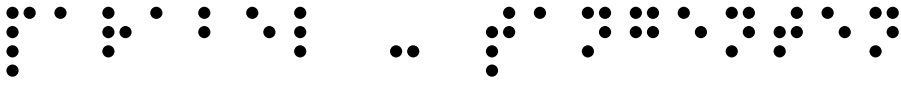
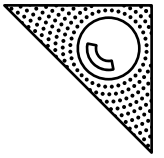


$l: y = -p/2$





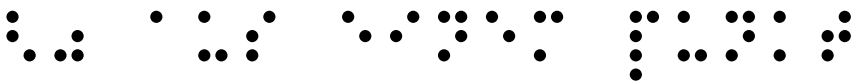
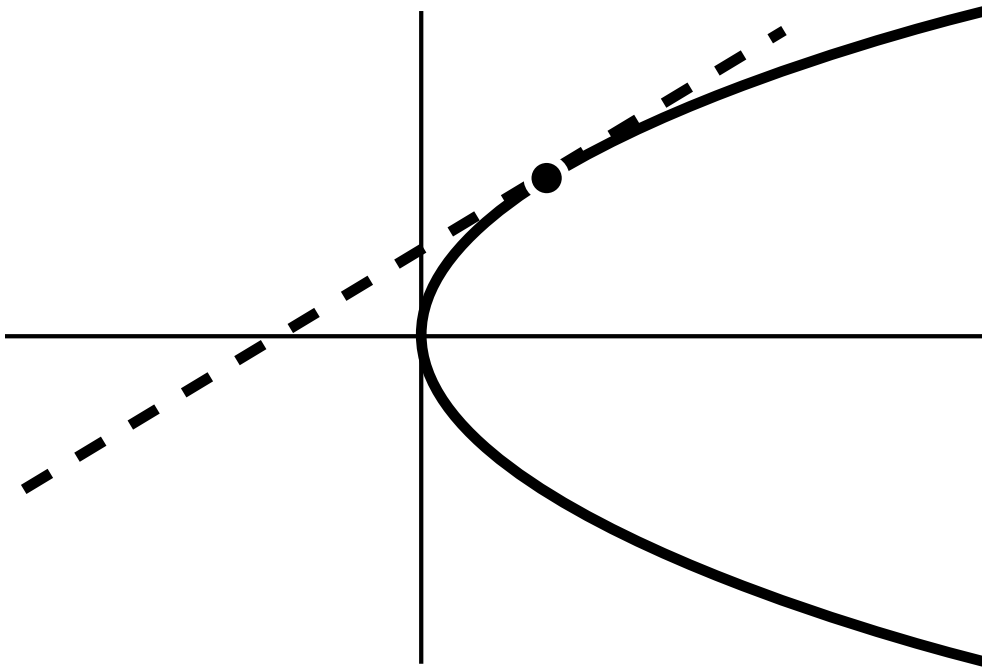
St 11 Kegelschnitte, 20/21



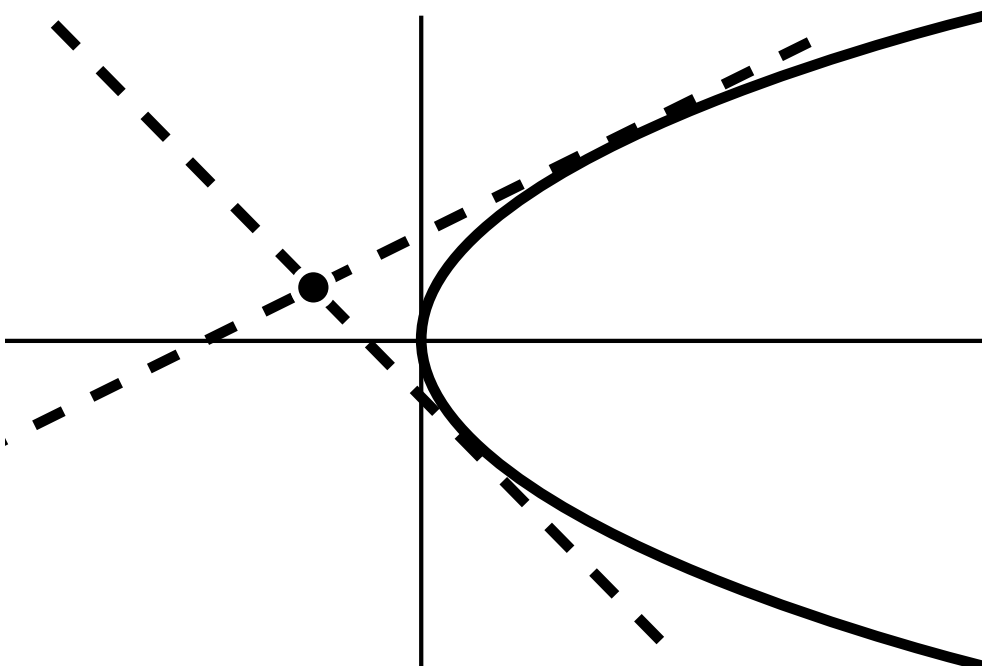
Parabel - Tangenten



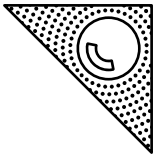
1) in einem Punkt



2) aus einem Punkt



St 11 Kegelschnitte, 21/21



St 11 Kegelschnitte, 21/21

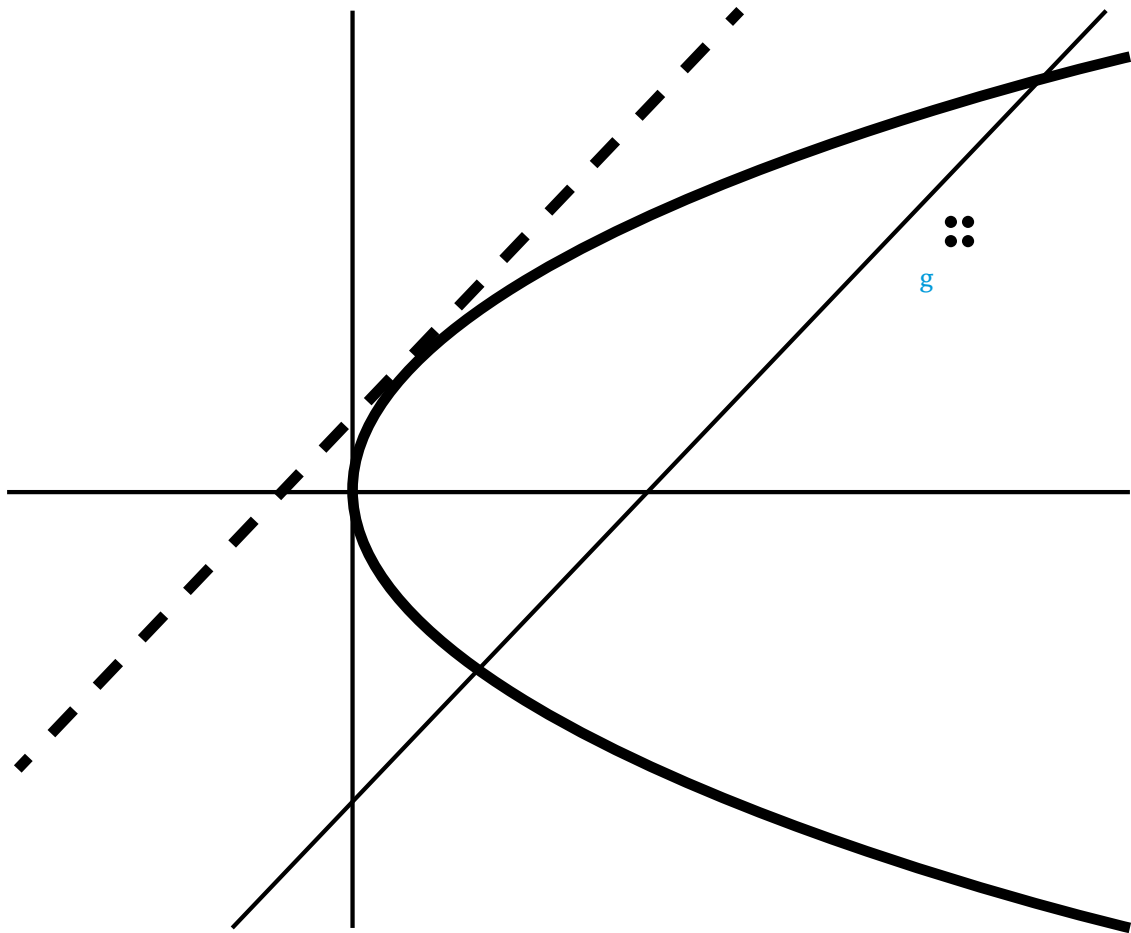
Parabel

Parabel

3) Tangenten mit vorgegebener Richtung (g)

3) Tangenten mit vorgegebener Richtung (g)

3) Tangenten mit vorgegebener Richtung (g)

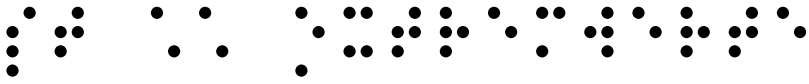


Extremwertaufgaben

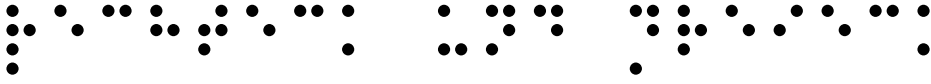
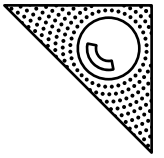
Schulstufe 11

Inhalt

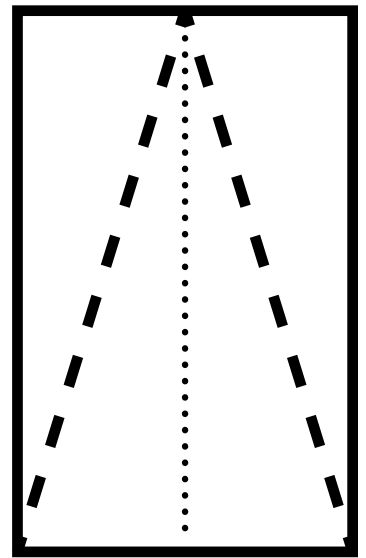
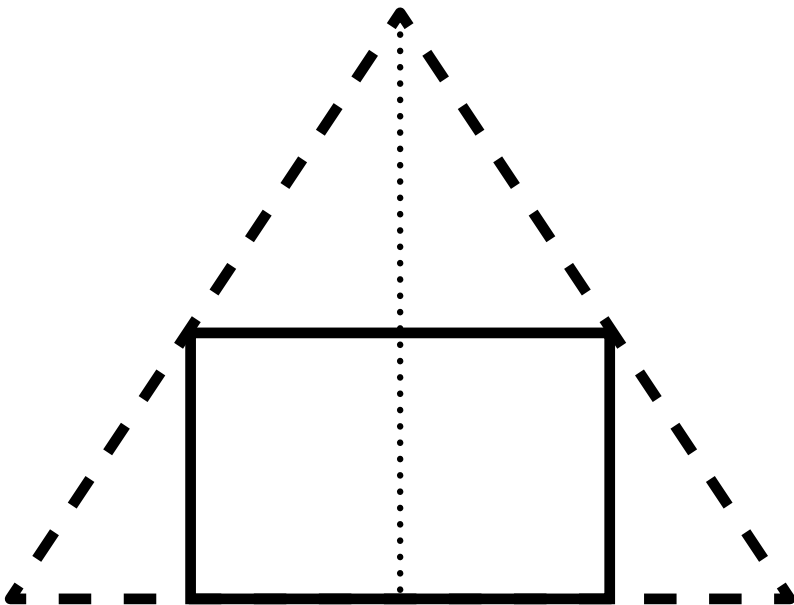
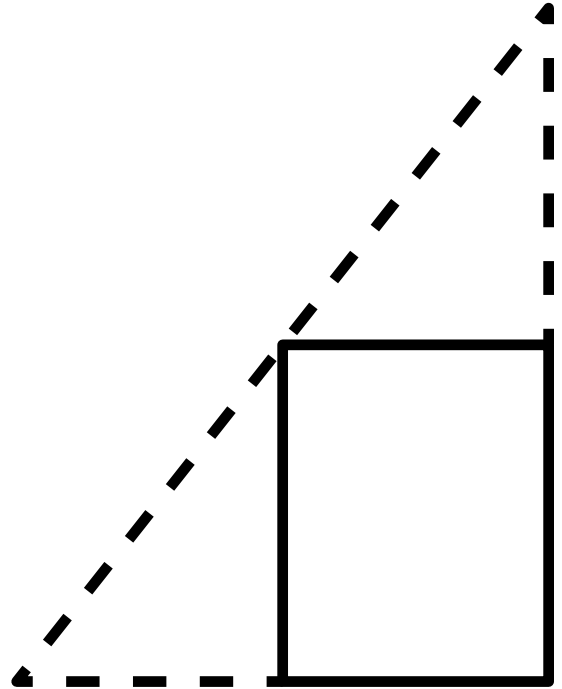
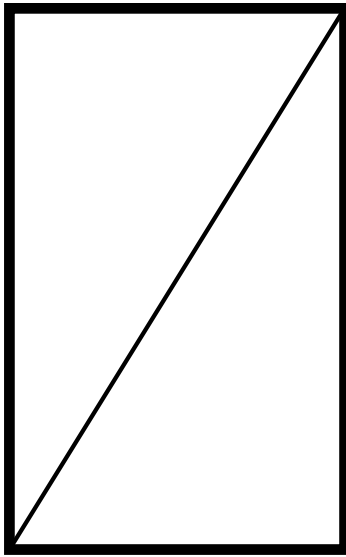
- 1 Rechteck und Dreieck
- 2 Rechteck und Kreis
- 3 Kreis und Viereck
- 4 Kreis und Dreieck
- 5 Quadrat

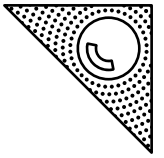
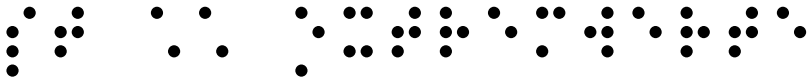


St 11 Extremwerte, 1/5



Rechteck und Dreieck

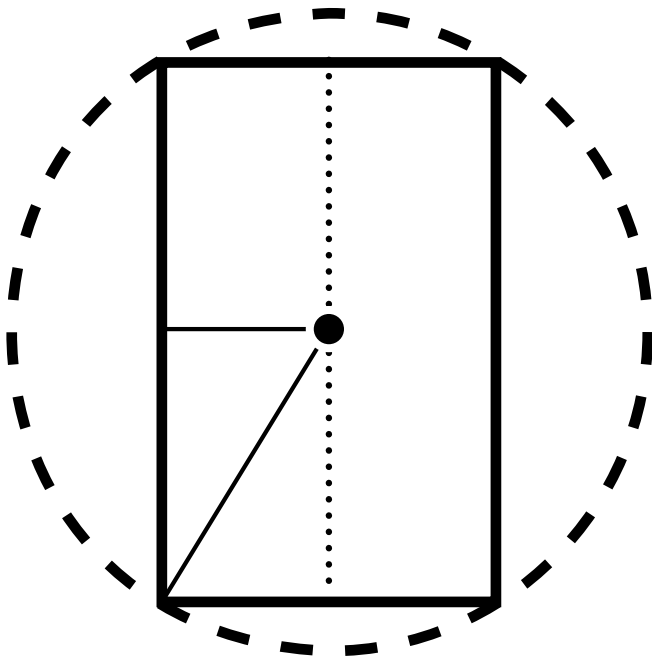
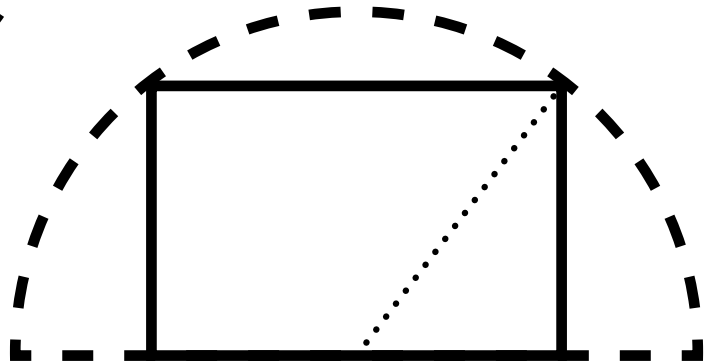
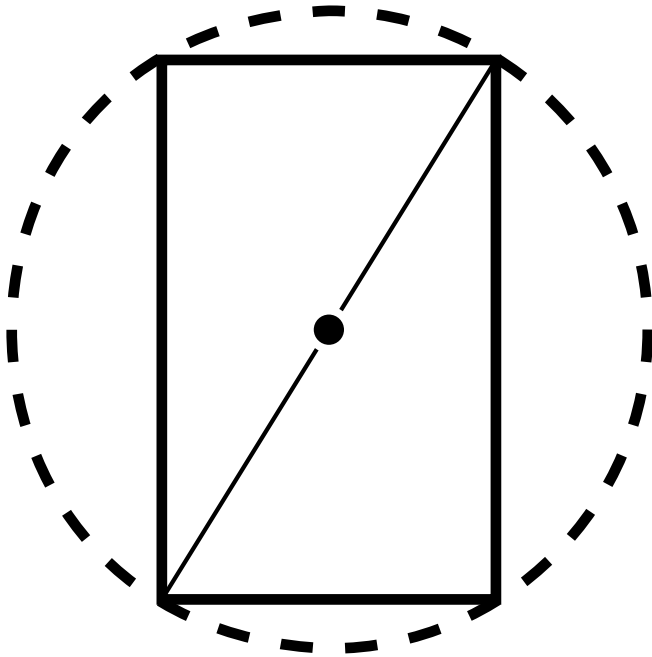


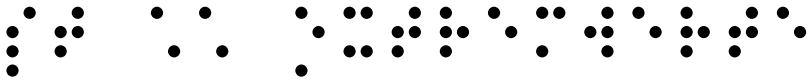


St 11 Extremwerte, 2/5

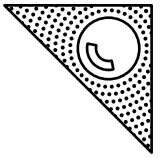
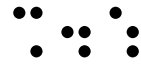


Rechteck und Kreis

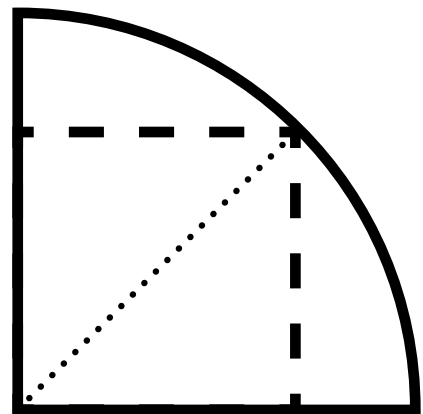
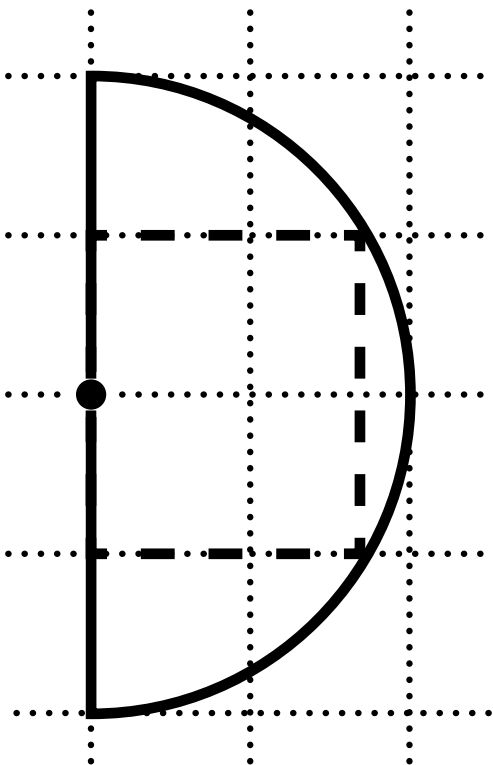
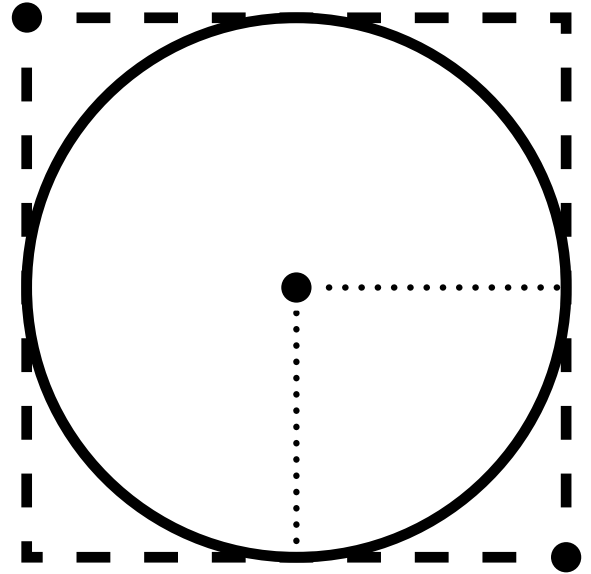
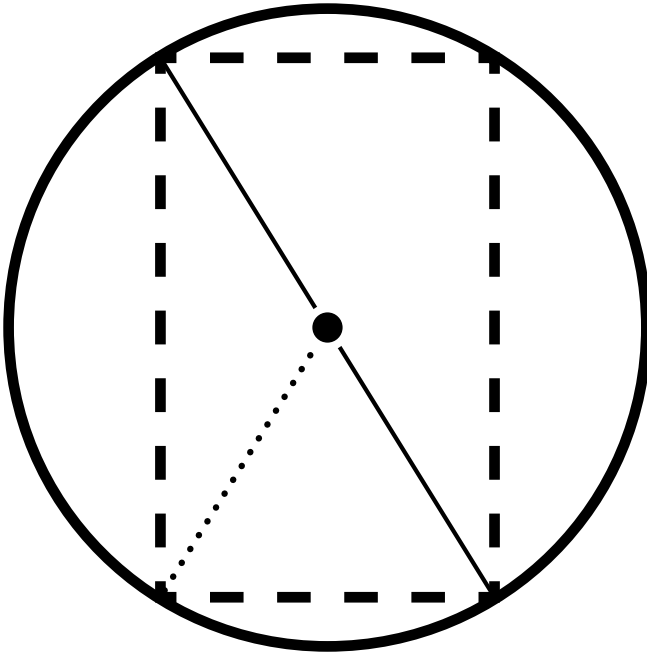


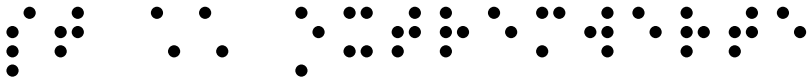


St 11 Extremwerte, 3/5

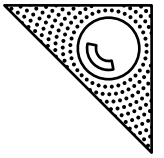
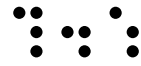


Kreis und Viereck

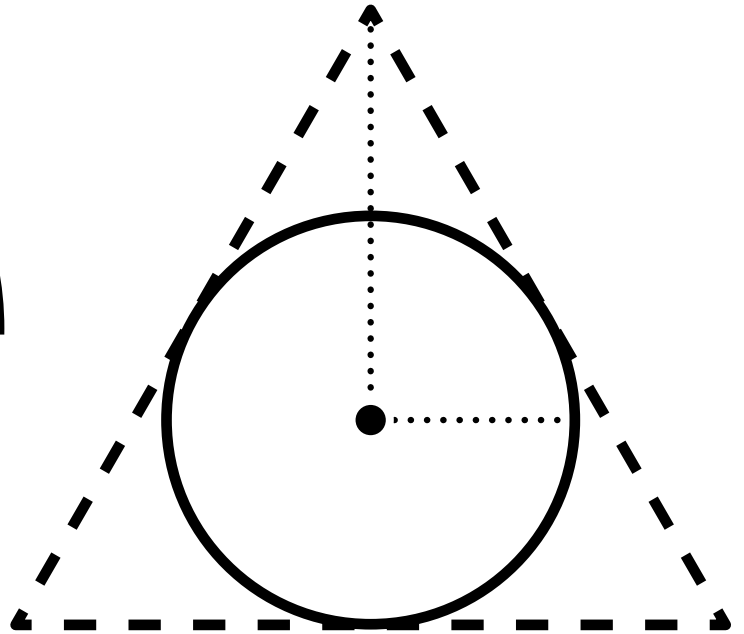
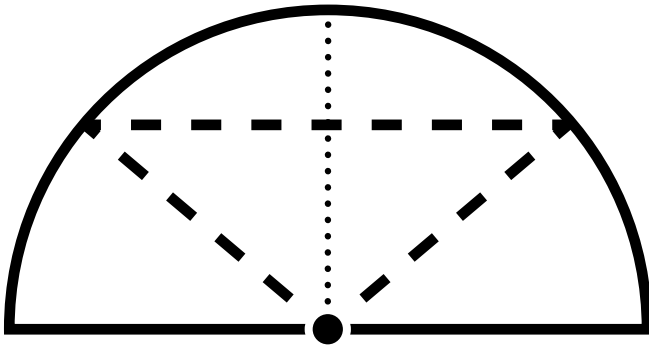
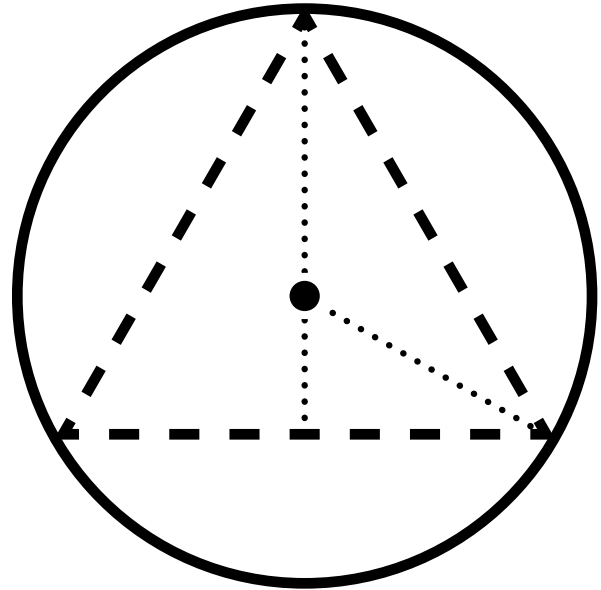
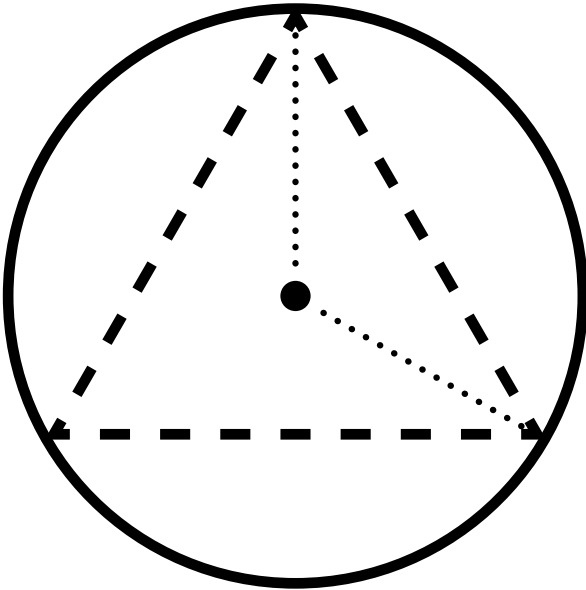


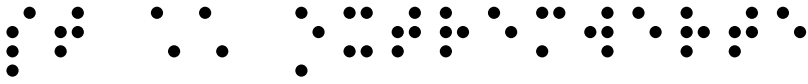


St 11 Extremwerte, 4/5

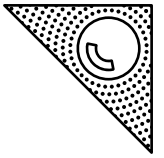
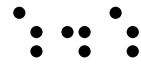


Kreis und Dreieck

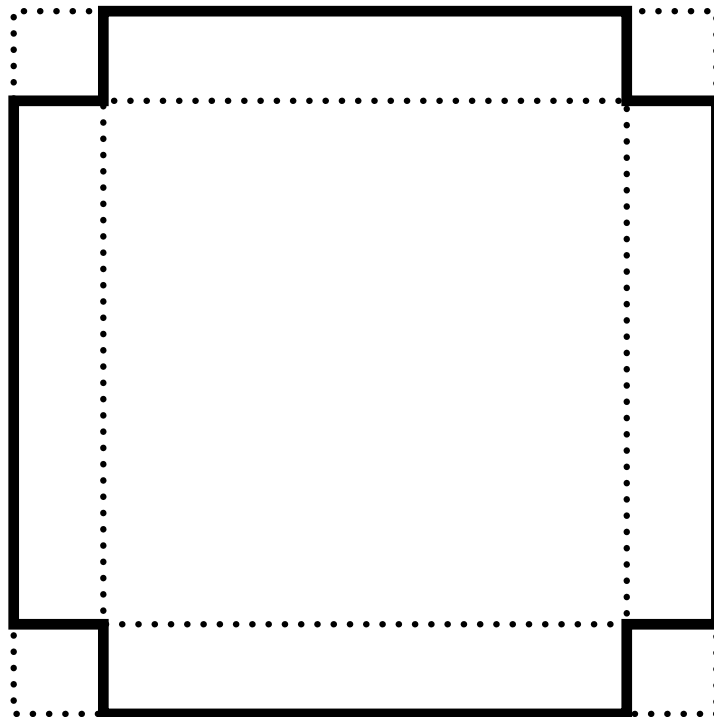
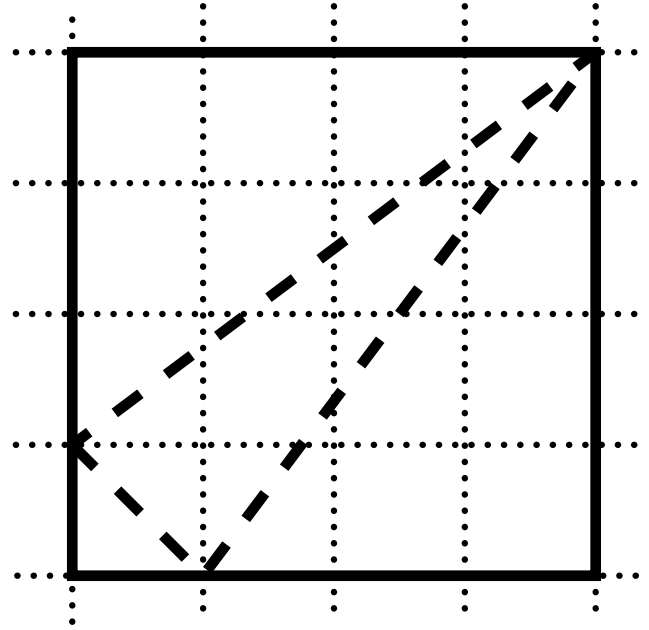
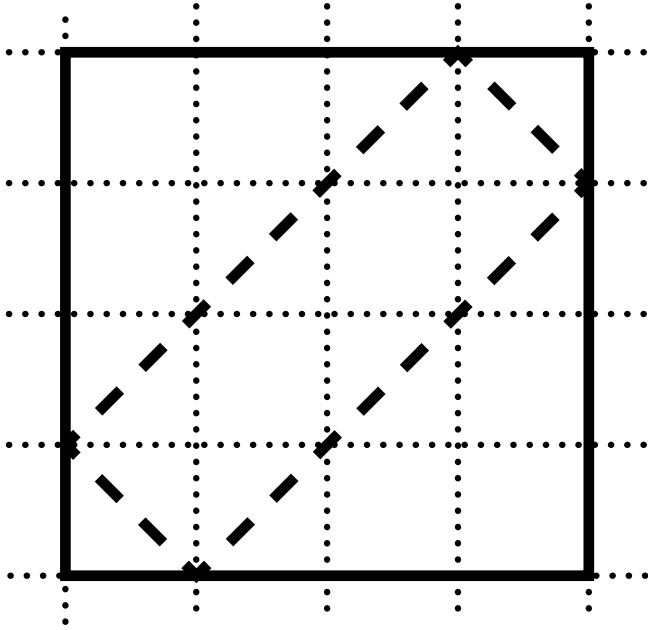




St 11 Extremwerte, 5/5



Quadrat



„

„

„

„

„

„

„

„

„

„

Impressum

Verlag: Braille-Zentrum in Zusammenarbeit mit der Abteilung für Inklusion und Lehrmittel (LMZ) am Bundes-Blindeninstitut Wien

Autor: Elisabeth Stanetty

Grafiken: Tomas Batha

Erstellungsjahr: 2022

1. Auflage