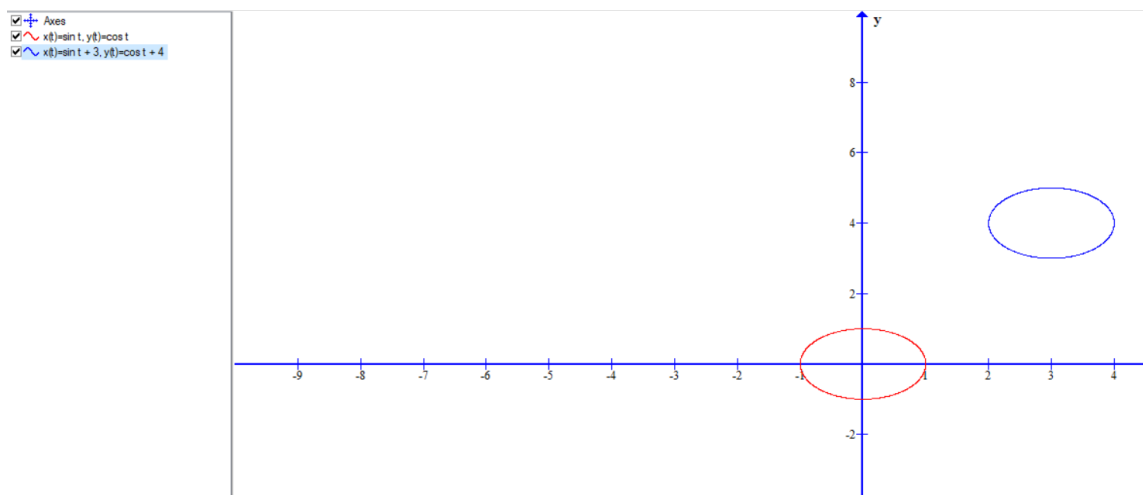
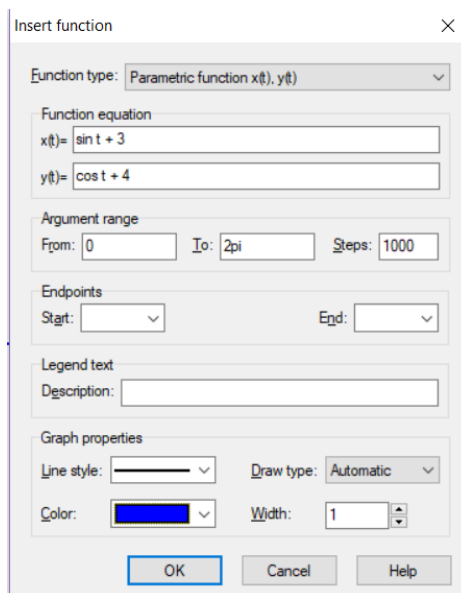
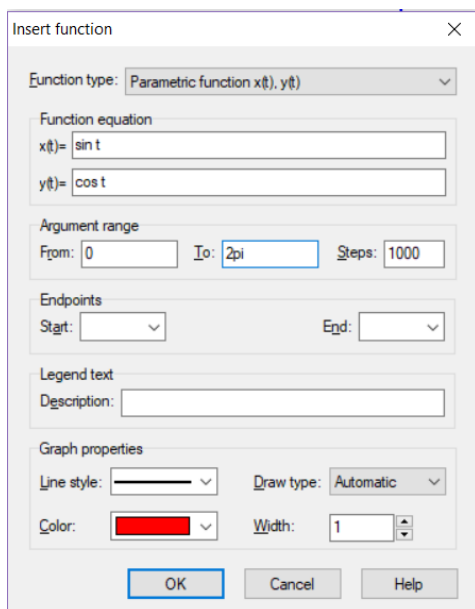
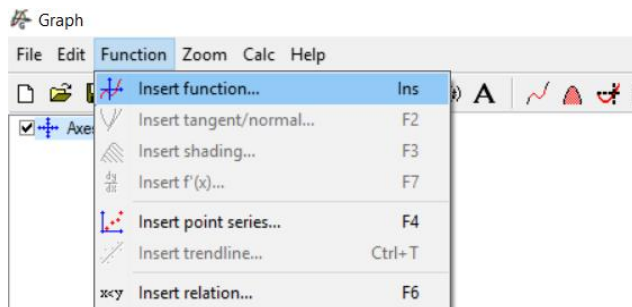
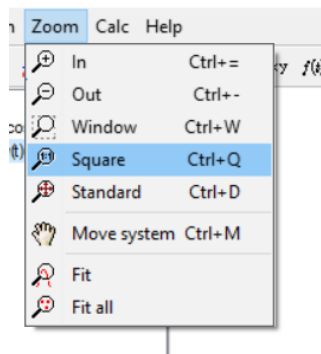
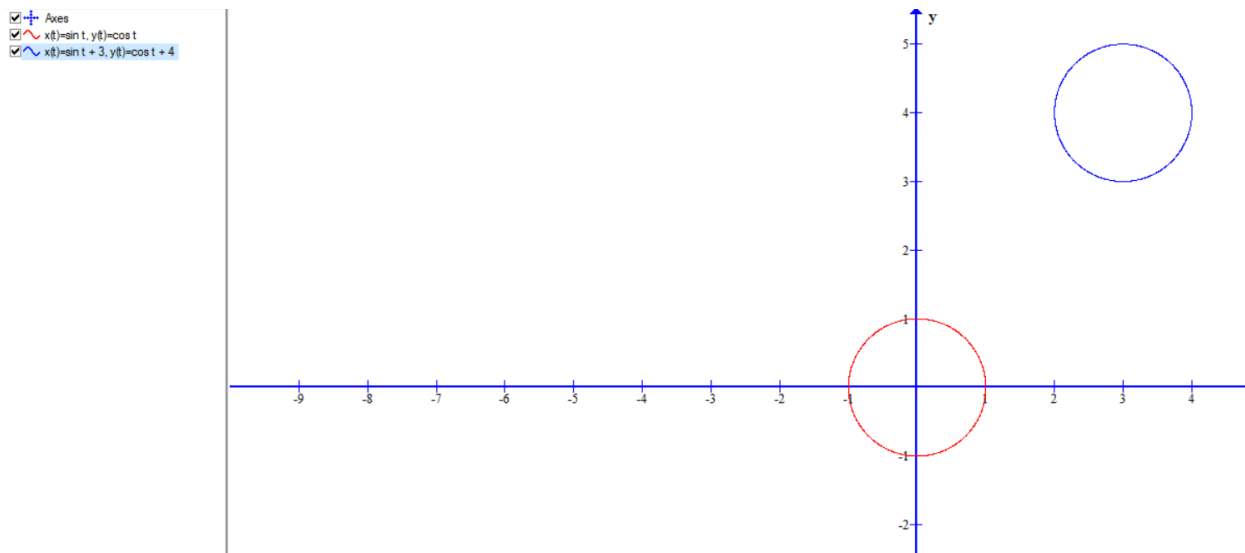


Parametric Function:

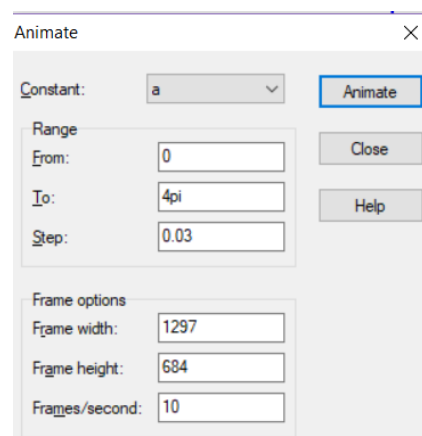
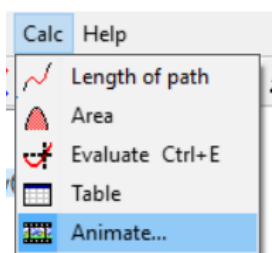
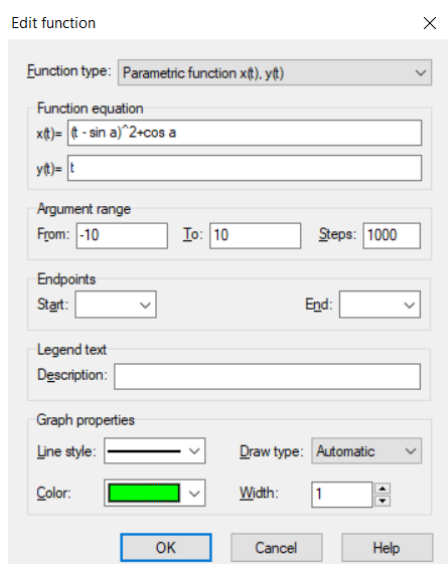
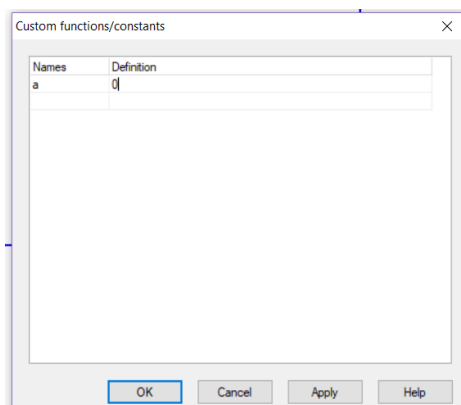
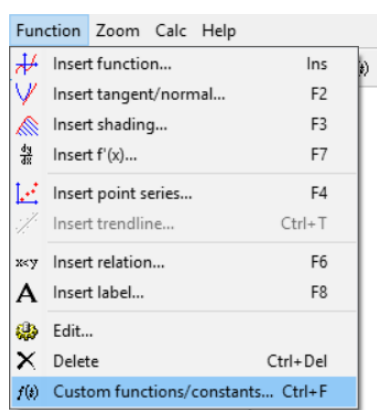


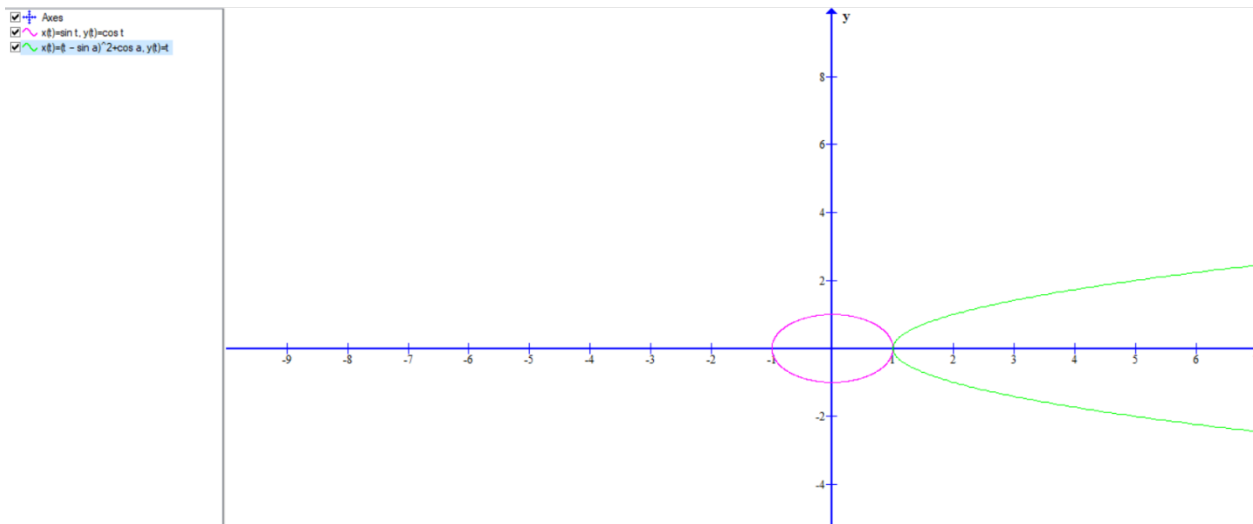
Aby „dopasować” ekran:





Add Animations:





Insert Shading:

Insert function

Function type: Standard function $y=f(x)$

Function equation
 $f(x)=$

Argument range
 From: To: Steps:

Endpoints
 Start: End:

Legend text
 Description:

Graph properties
 Line style: Draw type: Automatic
 Color: Width:

OK Cancel Help

Insert function

Function type: Standard function $y=f(x)$

Function equation
 $f(x)=$

Argument range
 From: To: Steps:

Endpoints
 Start: End:

Legend text
 Description:

Graph properties
 Line style: Draw type: Automatic
 Color: Width:

OK Cancel Help

Function Zoom Calc Help

- Insert function... Ins
- Insert tangent/normal... F2
- Insert shading... F3
- Insert $f'(x)$... F7
- Insert point series... F4
- Insert trendline... Ctrl+T
- Insert relation... F6
- Insert label... F8
- Edit...
- Delete Ctrl+Del
- Custom functions/constants... Ctrl+F

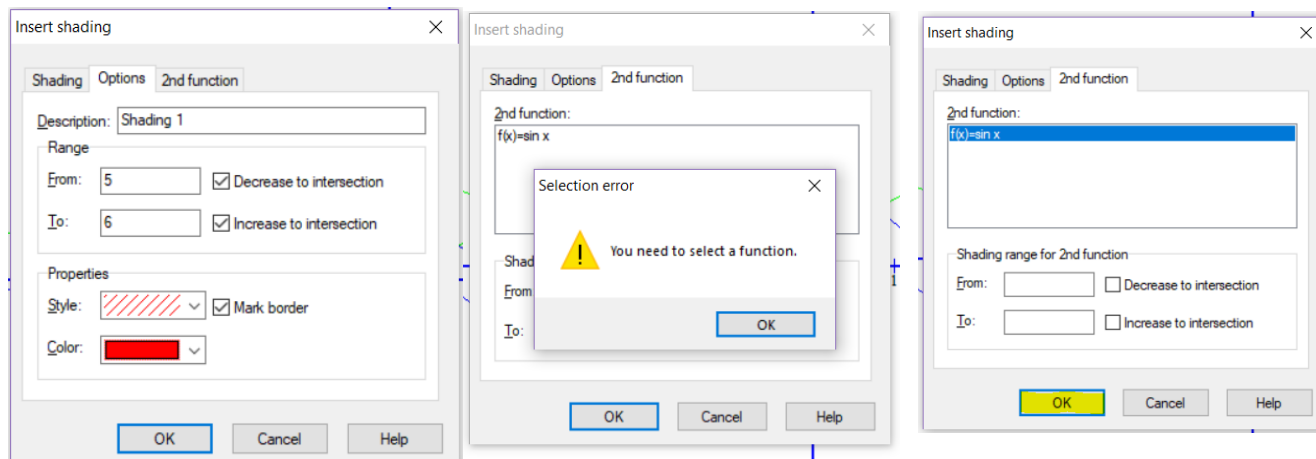
Insert shading

Shading Options 2nd function

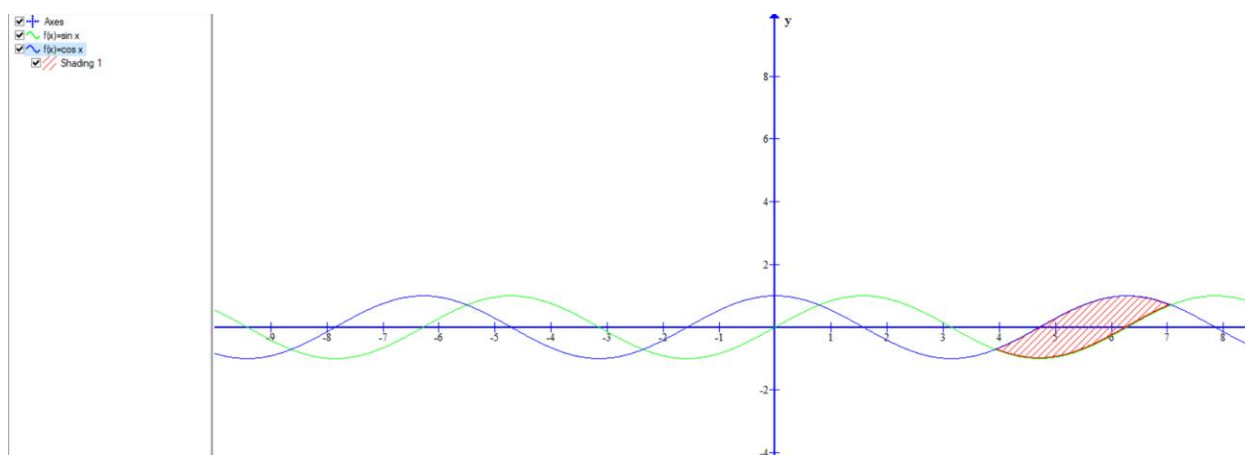
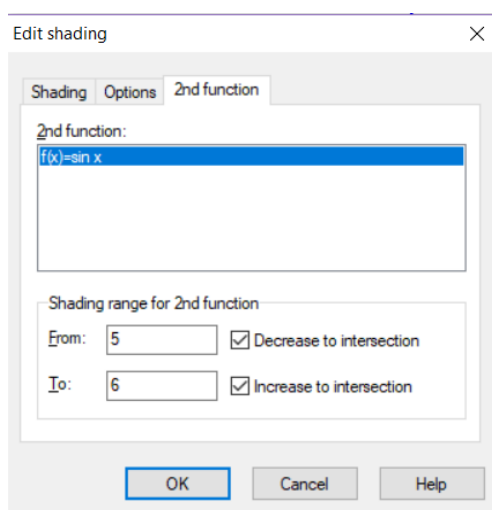
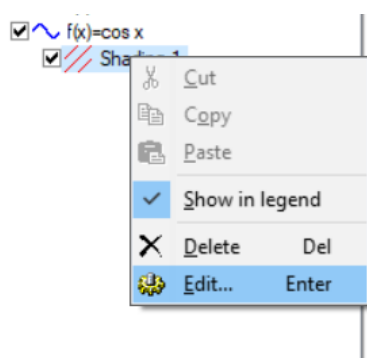
☐ Between function and x-axis
 ☐ Below function
 ☐ Above function

☐ Between function and y-axis
 ☐ Inside function
 ☒ Between functions

OK Cancel Help



Po kliknięciu edytuj pola będą wypełnione jak poniżej:



Two Flowers Animate:

Custom functions/constants

Names	Definition
a	0

OK Cancel Apply Help

Insert function

Function type: Polar function $r=f(\theta)$

Function equation
 $r(\theta) = 3 + 2\sin(\theta - a)$

Argument range
 From: 0 To: 2π Steps: 1000

Endpoints
 Start: End:

Legend text
 Description:

Graph properties
 Line style: Draw type: Automatic
 Color: Width: 1

OK Cancel Help

Insert function

Function type: Polar function $r=f(\theta)$

Function equation
 $r(\theta) = 5 + 4\sin(9\theta + 2a)$

Argument range
 From: 0 To: 2π Steps: 1000

Endpoints
 Start: End:

Legend text
 Description:

Graph properties
 Line style: Draw type: Automatic
 Color: Width: 1

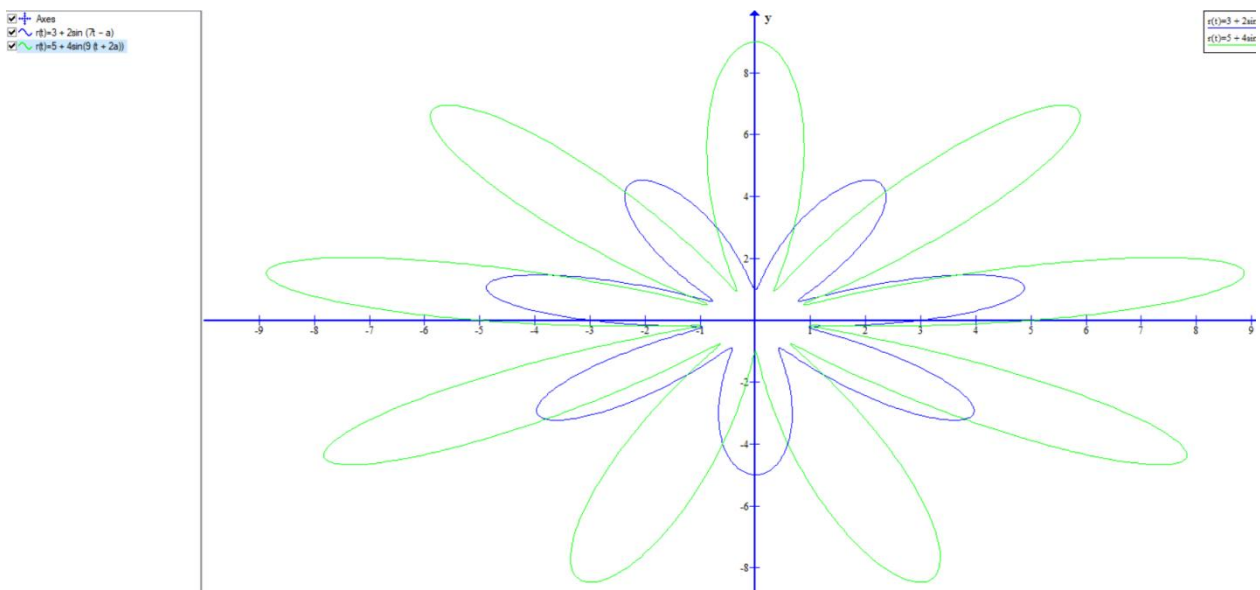
OK Cancel Help

Animate

Constant: a **Animate**

Range
 From: 0 To: 4π Step: 0.03 **Close** **Help**

Frame options
 Frame width: 1297
 Frame height: 684
 Frames/second: 10



Polar Function 2 Example:

Edit function

Function type: Polar function $r=f(t)$

Function equation
 $r(t) = \sqrt{t}$

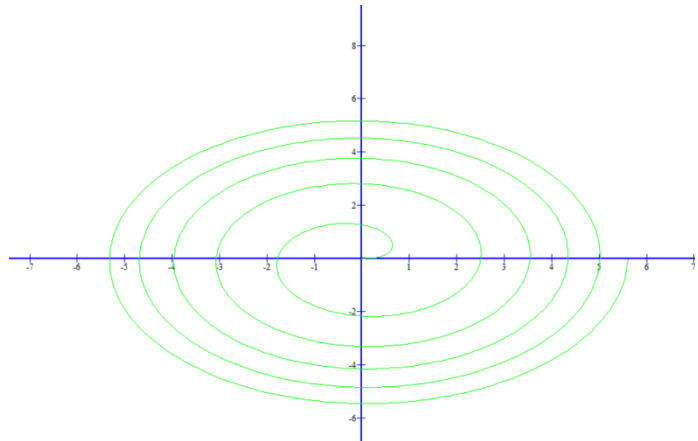
Argument range
From: 0 To: 10π Steps: 1000

Endpoints
Start: End:

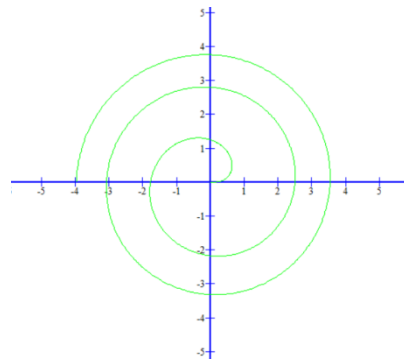
Legend text
Description:

Graph properties
Line style: Draw type: Automatic
Color: Width: 1

OK Cancel Help



Jeżeli zmienimy 10π na 5π efekt będzie następujący:



Romb + Koło -> Animacja Koło wokół Rombu

Custom functions/constants

Names	Definition
to	$\pi/3$
ro	5
b	2

Insert function

×

Function type: Polar function $r=f(t)$

Function equation

$r(t) = ro \cdot \cos(t_o - t) + \sqrt{b^2 - (ro^2) \cdot (\sin(t_o - t))^2}$

Argument range

From: 0 To: 2π Steps: 1000

Endpoints

Start: End:

Legend text

Description:

Graph properties

Line style: Draw type: Automatic

Color: Width: 1

OK

Cancel

Help

Edit function

×

Function type: Polar function $r=f(t)$

Function equation

$r(t) = 4 / (\text{abs}(\sin t) + \text{abs}(\cos t))$

Argument range

From: 0 To: 2π Steps: 1000

Endpoints

Start: End:

Legend text

Description:

Graph properties

Line style: Draw type: Automatic

Color: Width: 1

OK

Cancel

Help

Animate

×

Constant: to

Animate

Range

From: 0.104719755119

To: 10.47197551196

Step: 1.151917306316

Close

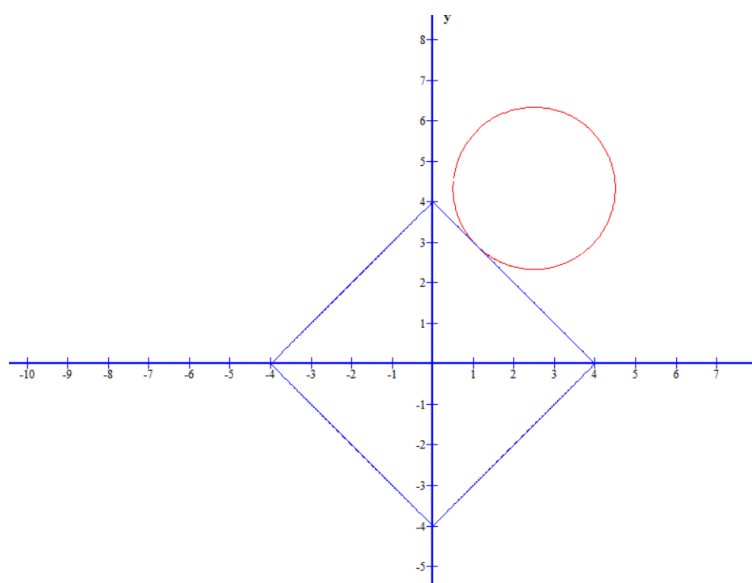
Help

Frame options

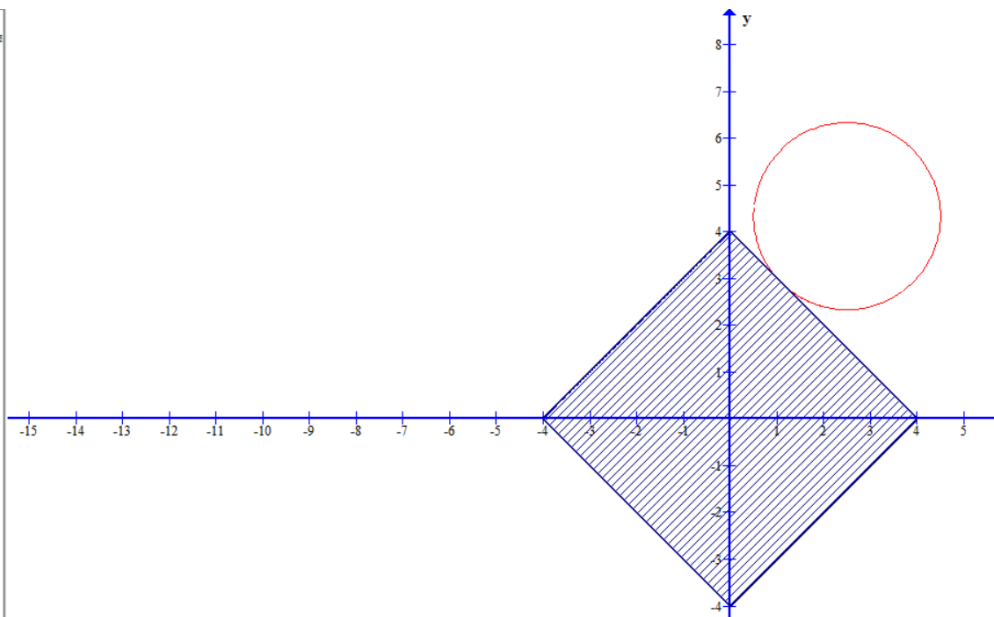
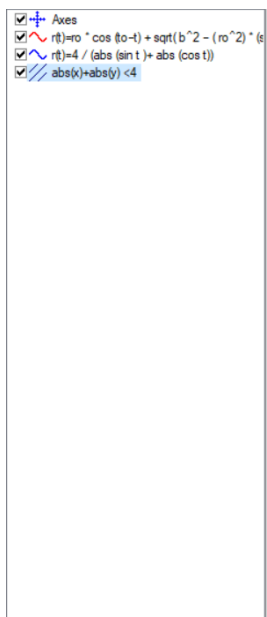
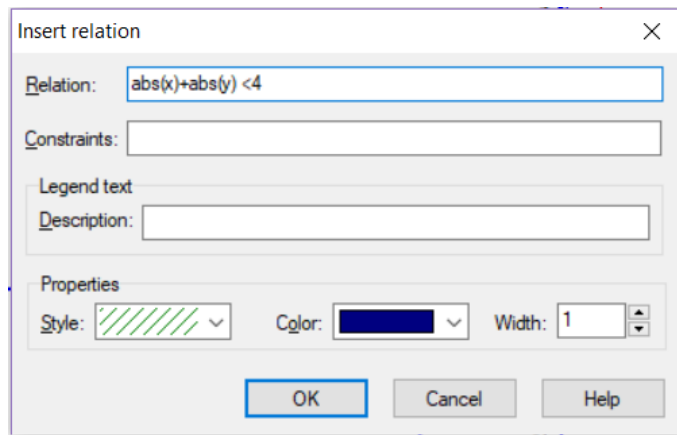
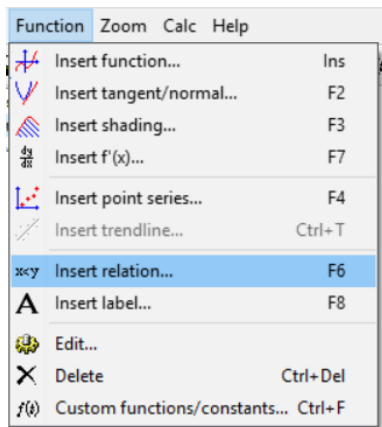
Frame width: 1297

Frame height: 684

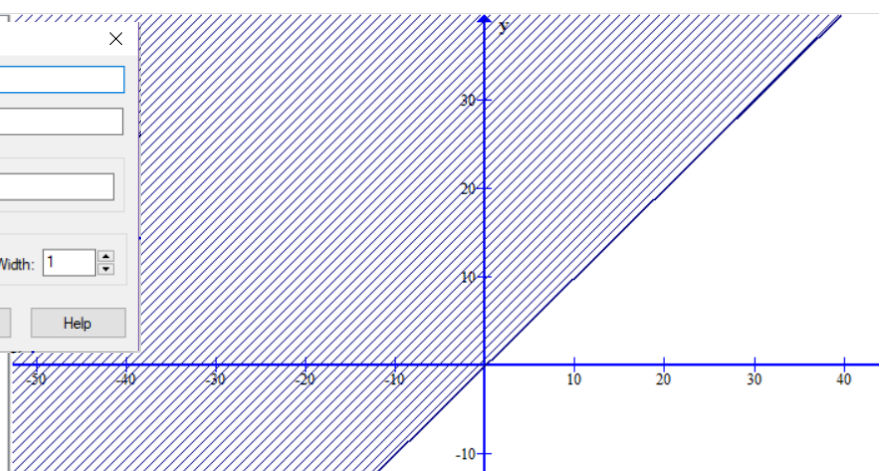
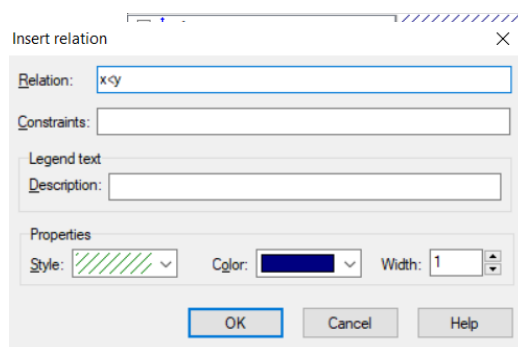
Frames/second: 10



Add Relation:



Relation:



Edit relation

Relation:

Constraints:

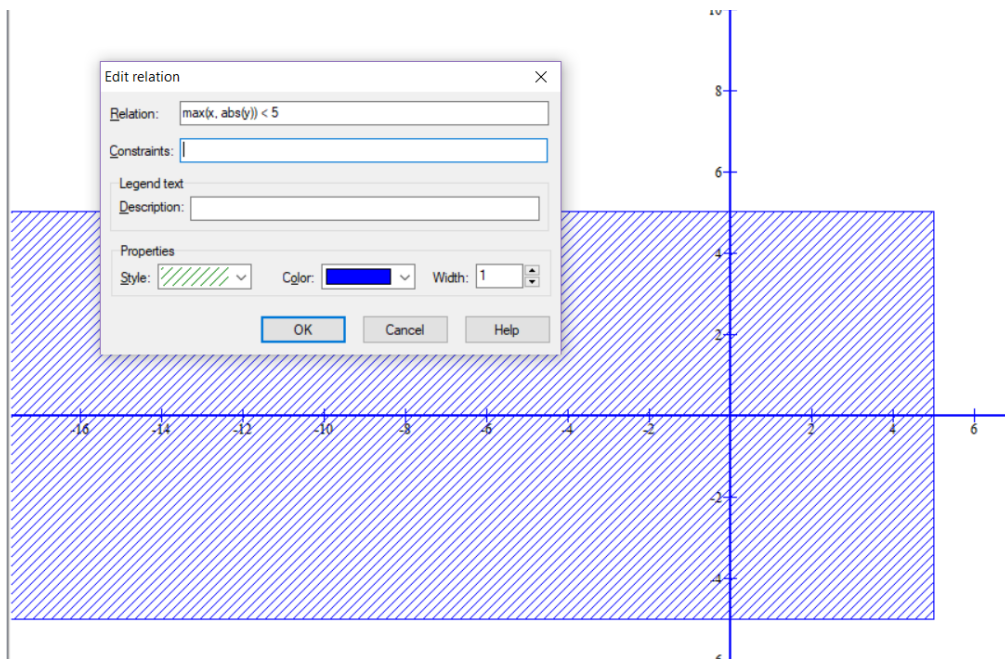
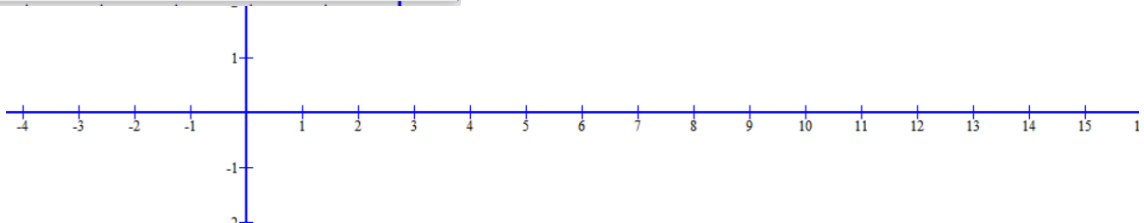
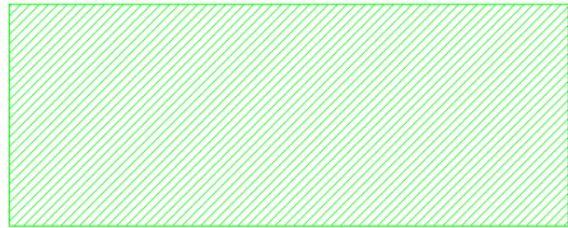
Legend text

Description:

Properties

Style: Color: Width:

OK Cancel Help



Edit relation

Relation:

Constraints:

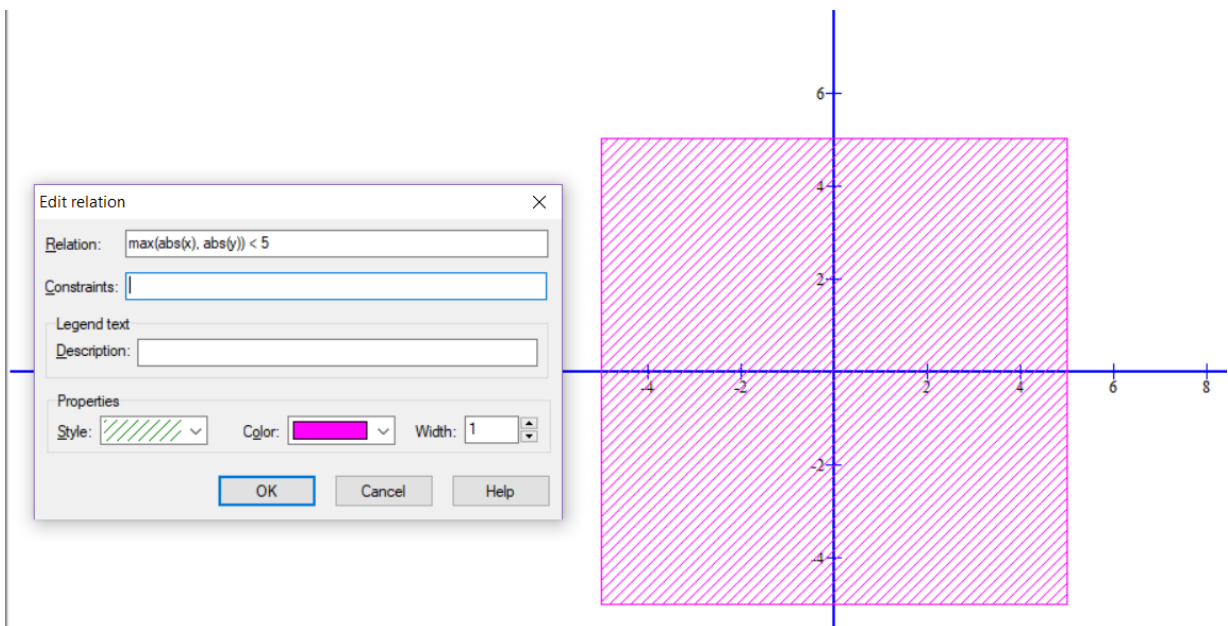
Legend text

Description:

Properties

Style: Color: Width:

OK Cancel Help



Edit relation

Relation:

Constraints:

Legend text

Description:

Properties

Style: Color: Width:

OK Cancel Help

Edit relation



Relation: $\max(\text{abs}(4x), \text{abs}(10y)) < 20$

Constraints:

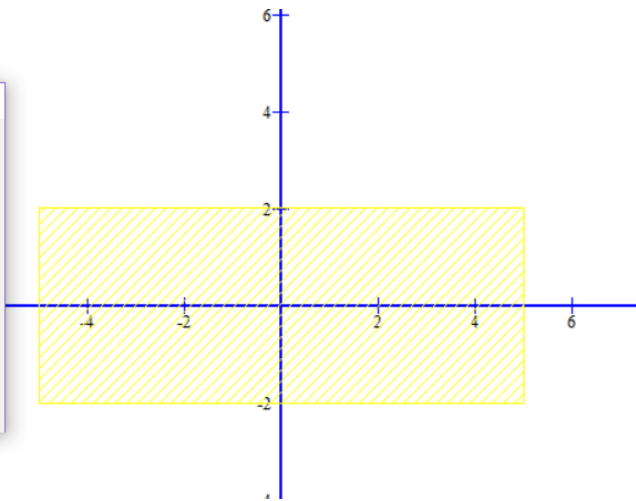
Legend text

Description:

Properties

Style:  Color:  Width: 1

OK Cancel Help



Edit relation



Relation: $\text{abs}(x) + \text{abs}(y) < 4$

Constraints:

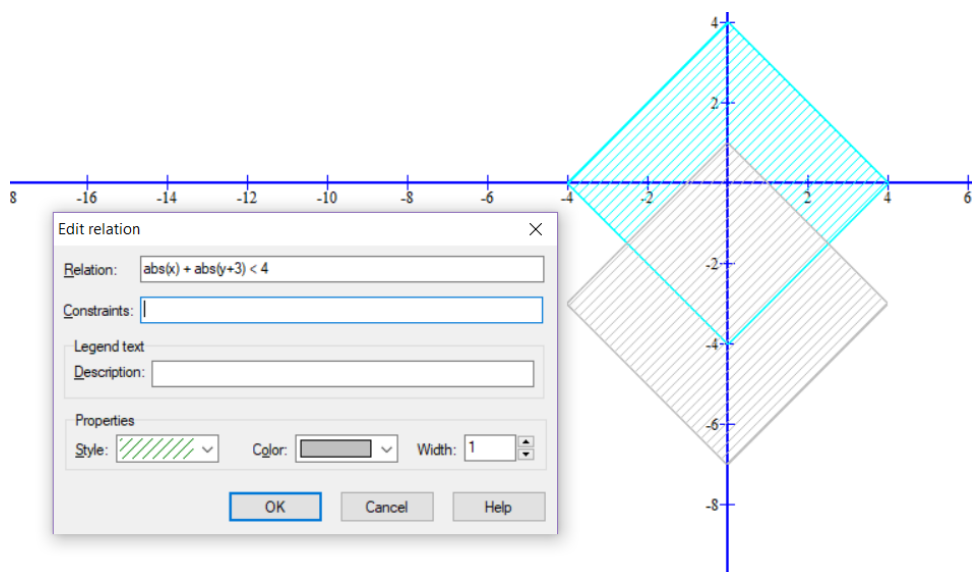
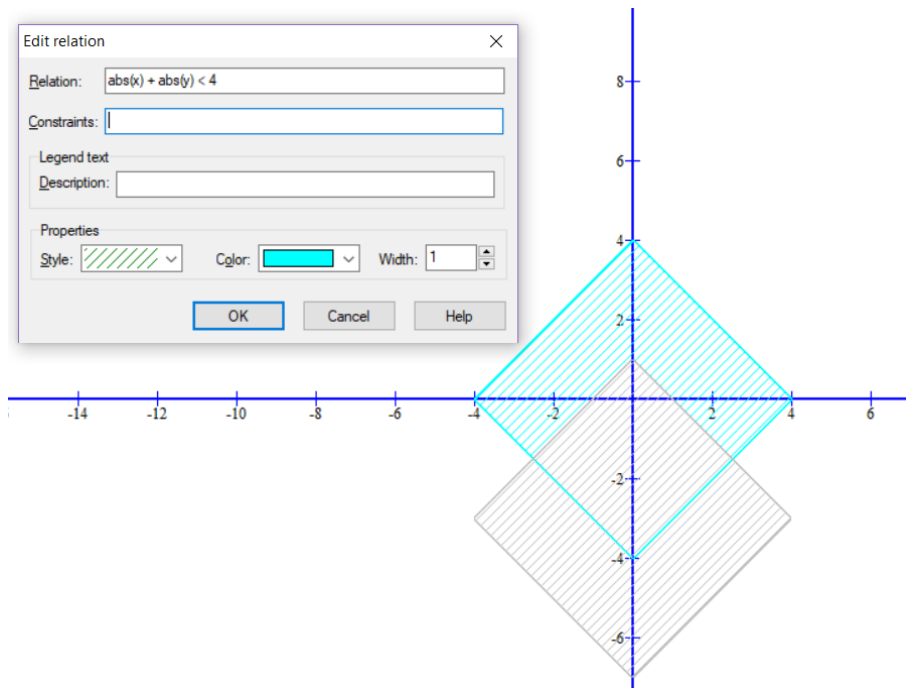
Legend text

Description:

Properties

Style:  Color:  Width: 1

OK Cancel Help



Edit relation



Relation: $\text{abs}(x) + \text{abs}(y+3) < 4$

Constraints:

Legend text

Description:

Properties

Style:  Color:  Width: 1

OK Cancel Help

Insert Point Series:

Custom functions/constants

Names	Definition
a	1

Insert point series

Description: Series 1

X	Y
$\cos a - \sin a$	$\sin a + \cos a$
$\cos a - 2\sin a$	$\sin a + 2\cos a$

Function Zoom Calc Help

- Insert function... Ins
- Insert tangent/normal... F2
- Insert shading... F3
- Insert $f'(x)$... F7
- Insert point series... F4**
- Insert trendline... Ctrl+T
- Insert relation... F6
- Insert label... F8
- Edit...
- Delete Ctrl+Del
- Custom functions/constants... Ctrl+F

Markers Error bars

Coordinate type

☒ Cartesian

☐ Polar

Marker

Style: v

Color: v

Size: 5 v

Line

Style: v

Color: v

Width: 1 v

Interpolation: Linear v

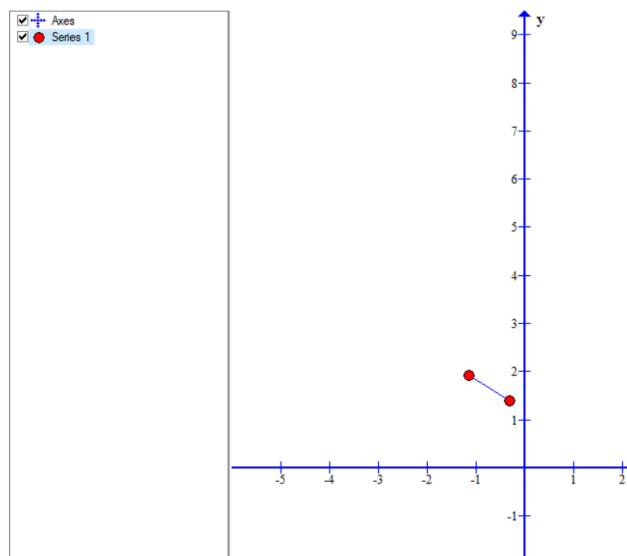
Labels

☐ Show coordinates

Position: Below v

Sample

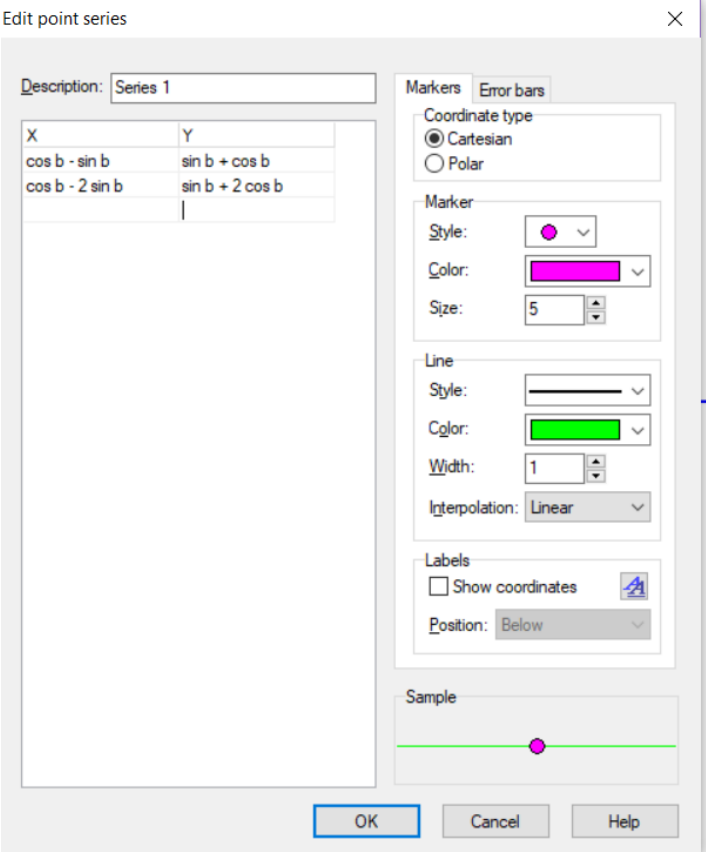
OK Cancel Help



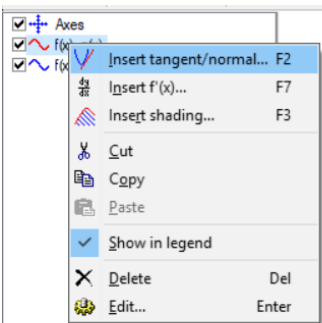
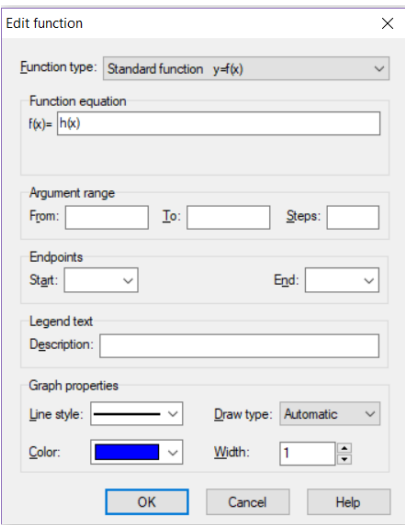
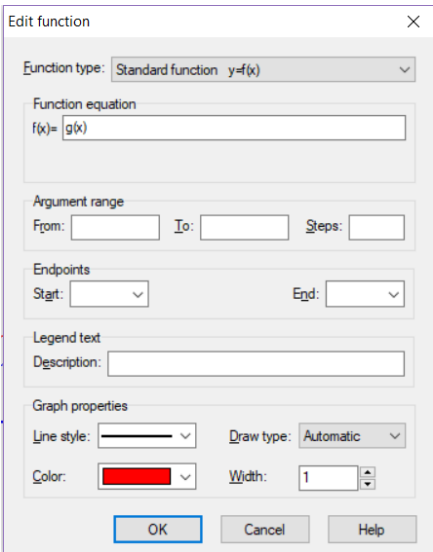
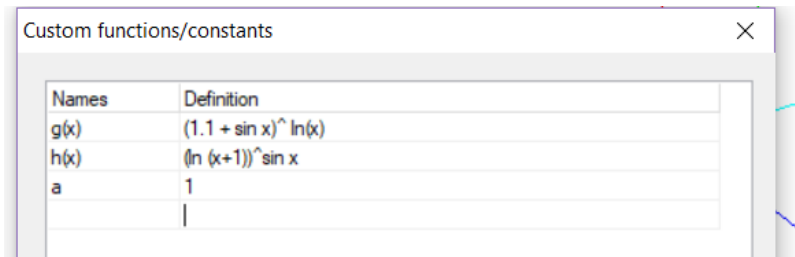
Insert Point Series 2 example:

Custom functions/constants

Names	Definition
a	1
b	0



Example Insert Tangnet/Normal:



Insert tangent/normal

x = 6

Legend text
Description:

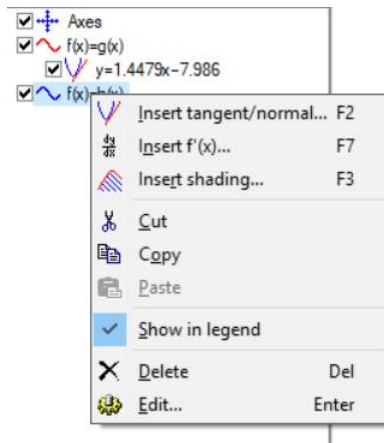
Argument range
From: To:

Endpoints
Start: End:

Graph properties
Line style: Color: Width: 1

Type
☒ Tangent
☐ Normal

OK Cancel Help



Insert tangent/normal

x = a

Legend text
Description:

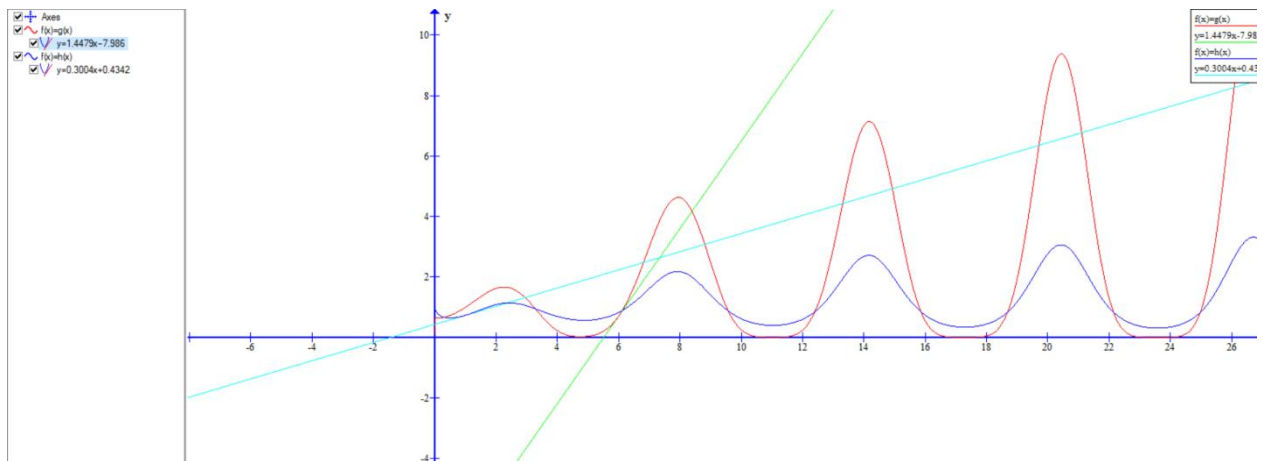
Argument range
From: To:

Endpoints
Start: End:

Graph properties
Line style: Color: Width: 1

Type
☒ Tangent
☐ Normal

OK Cancel Help



Change:

☒ Axes
☒ $f(x)=g(x)$
☒ $y=1.4479x-7.986$
☒ $f(x)=h(x)$
☒ $y=0.3004x+0.4342$

Edit tangent/normal

x = 6

Legend text
Description:

Argument range
From: To:

Endpoints
Start: End:

Graph properties
Line style: Color: Width: 1

Type
☐ Tangent
☒ Normal

OK Cancel Help

☒ Axes
☒ $f(x)=g(x)$
☒ $y=-0.6906x+4.8455$
☒ $f(x)=h(x)$
☒ $y=0.3004x+0.4342$

Edit tangent/normal

x = a

Legend text
Description:

Argument range
From: To:

Endpoints
Start: End:

Graph properties
Line style: Color: Width: 1

Type
☐ Tangent
☒ Normal

OK Cancel Help

