Growth Functions (2A)

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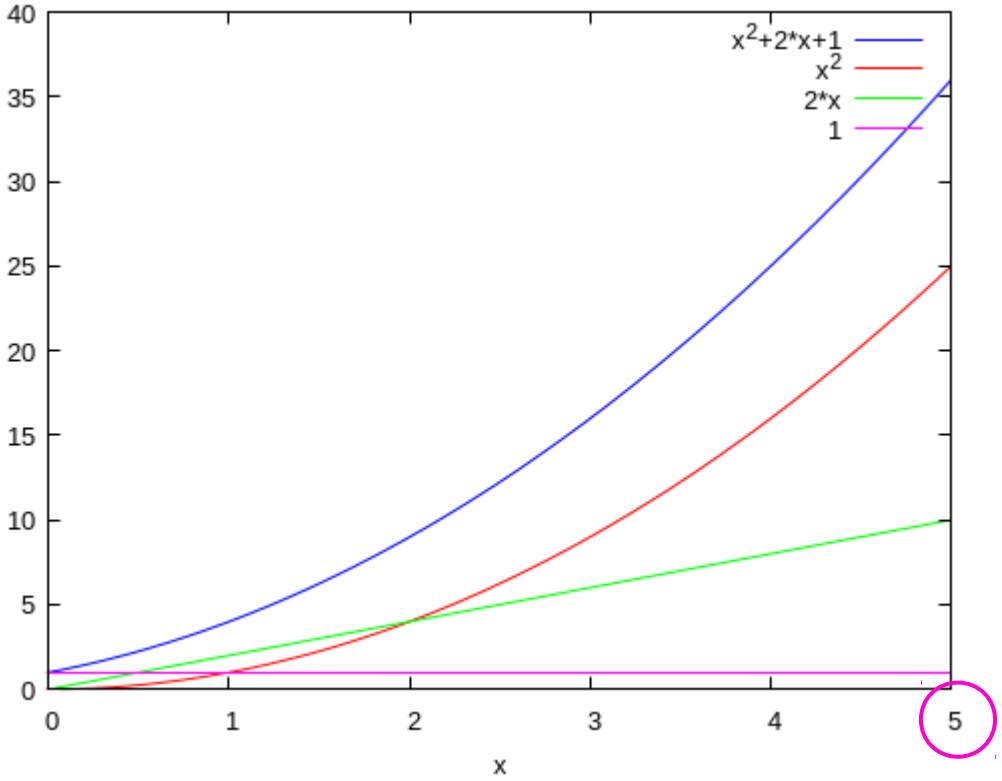
This document was produced by using LibreOffice and Octave.

Small Range



x^2+2x+1 All are distinguishable

x^2

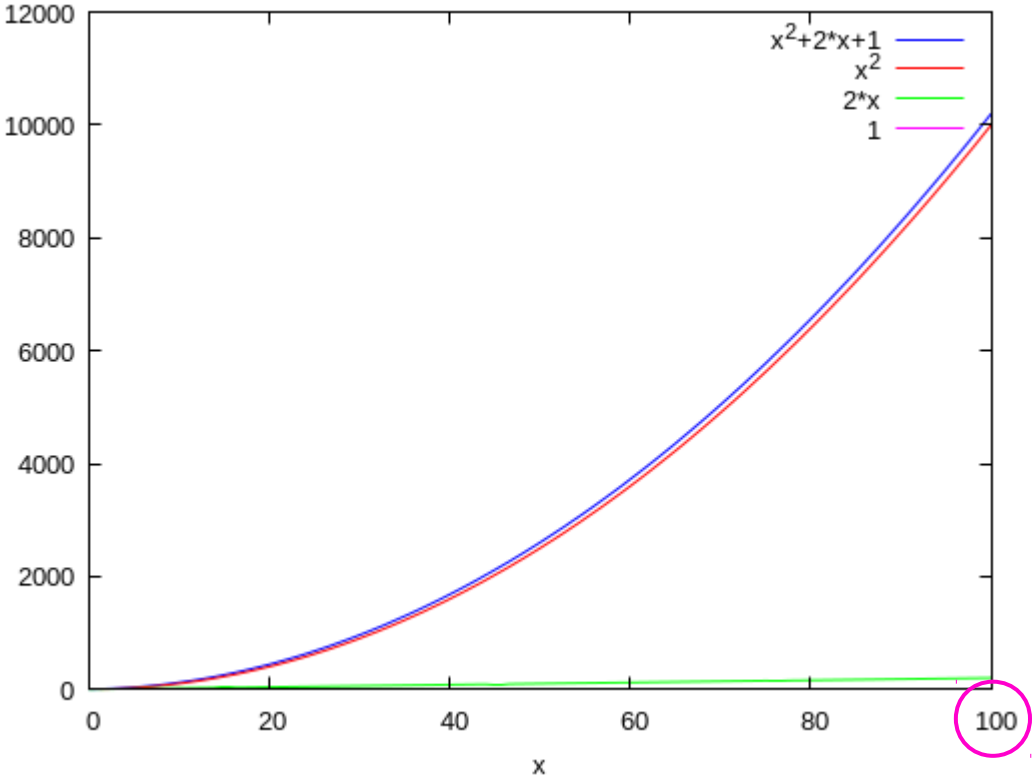
$2x$

1

Zoom Out

for $x > -0.5$ $x^2 < x^2+2x+1$

Medium Range



x^2+2x+1
x^2

similar

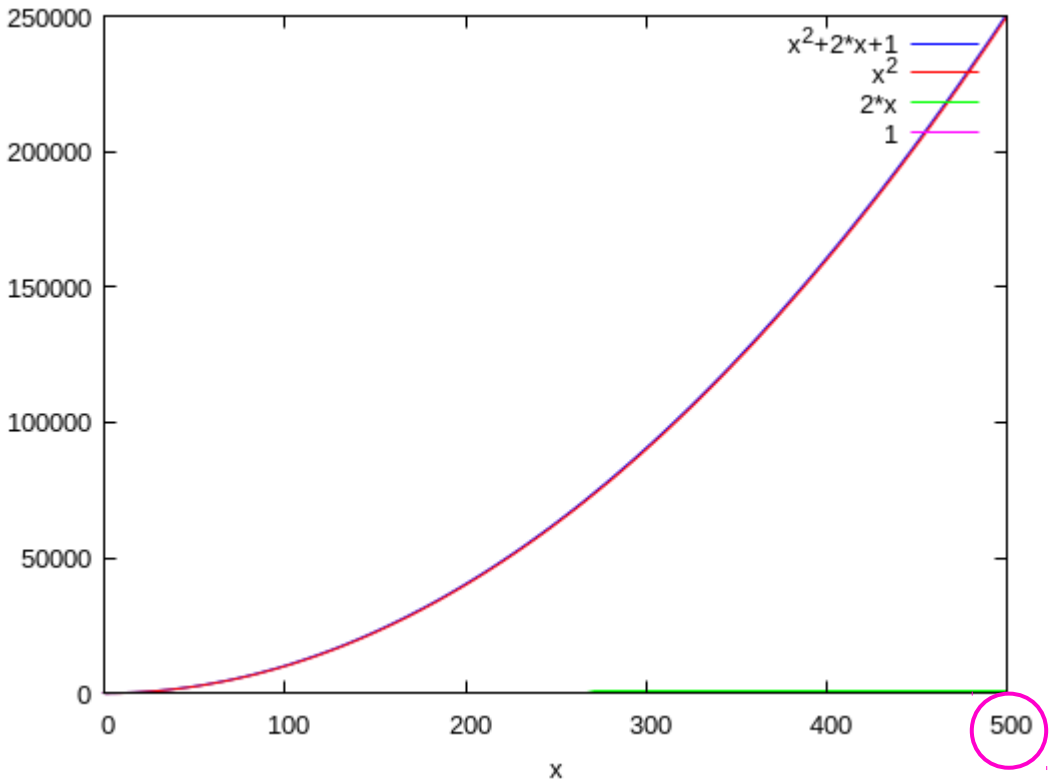
$2x$

Zoom Out More

for $x > -0.5$

$x^2 < x^2+2x+1$

Large Range



x^2+2x+1
x^2

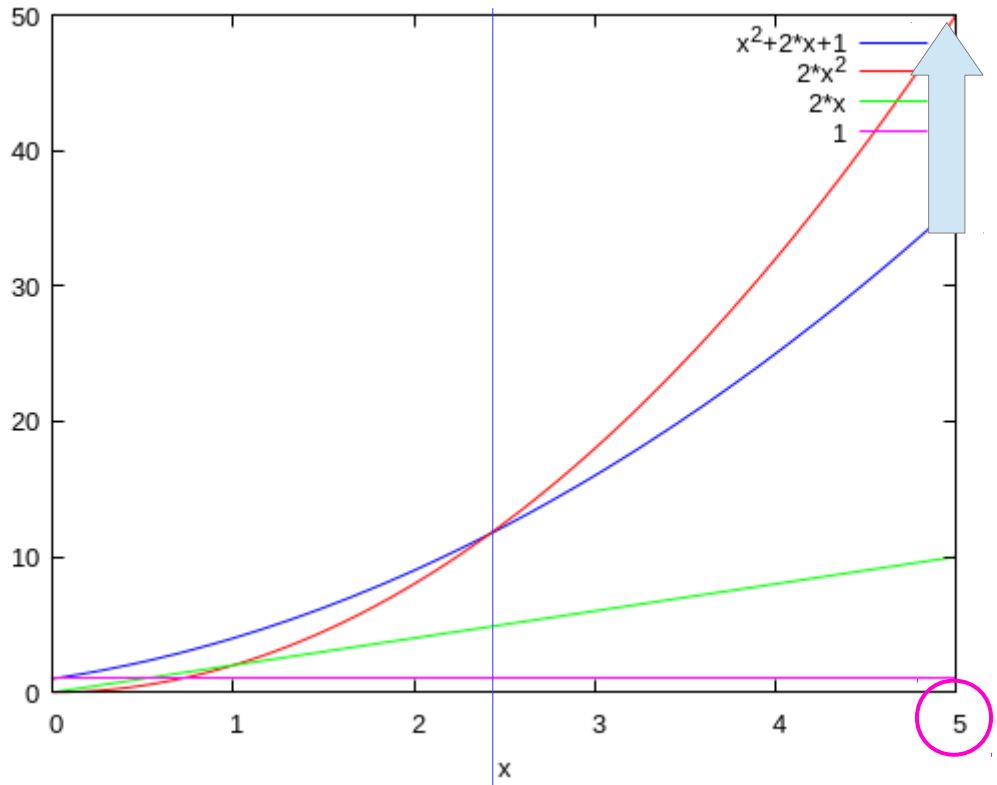
Indistinguishable

Zoom Out More

for $x > -0.5$

$x^2 < x^2+2x+1$

Small Range, C1=2



$2x^2$

distinguishable

x^2+2x+1

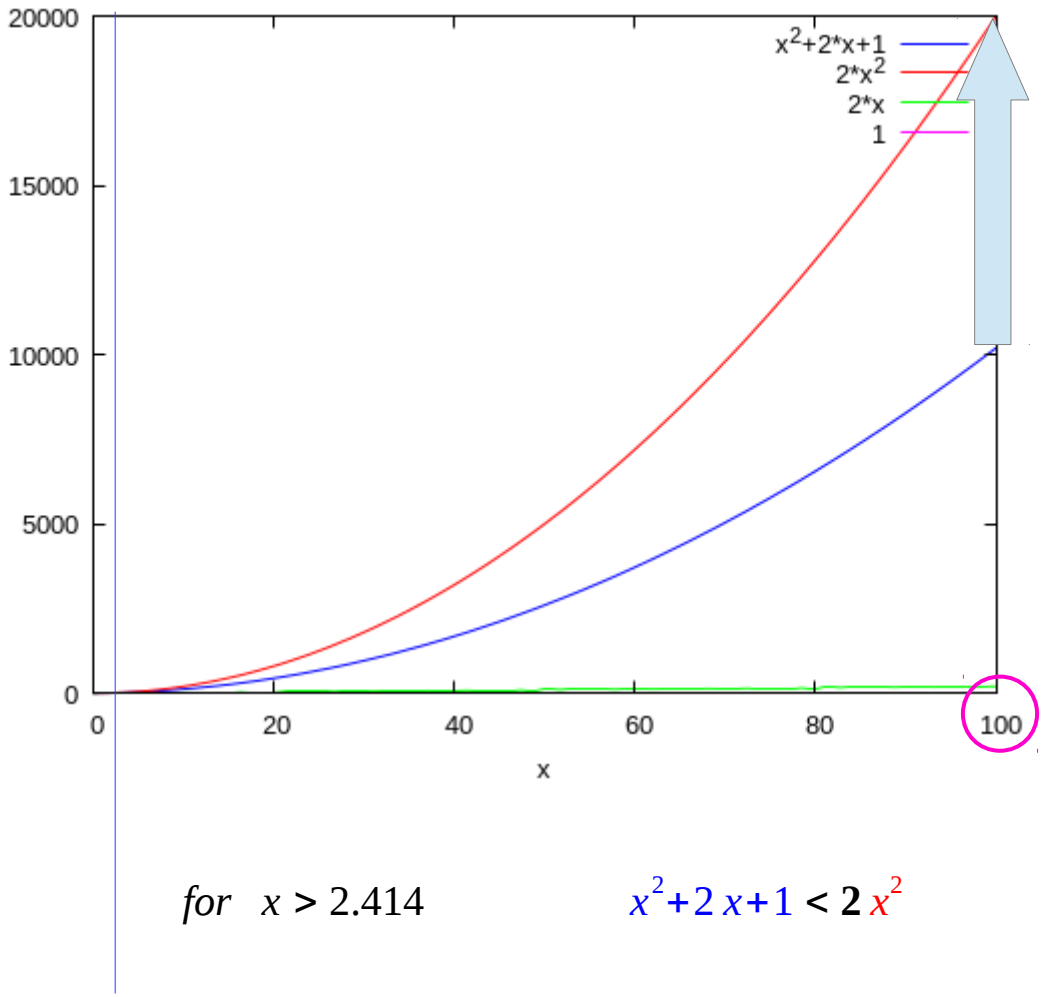
$2x$

1

Zoom Out

for $x > 2.414$ $\qquad x^2+2x+1 < 2x^2$

Medium Range, C1=2



$2x^2$

distinguishable

x^2+2x+1

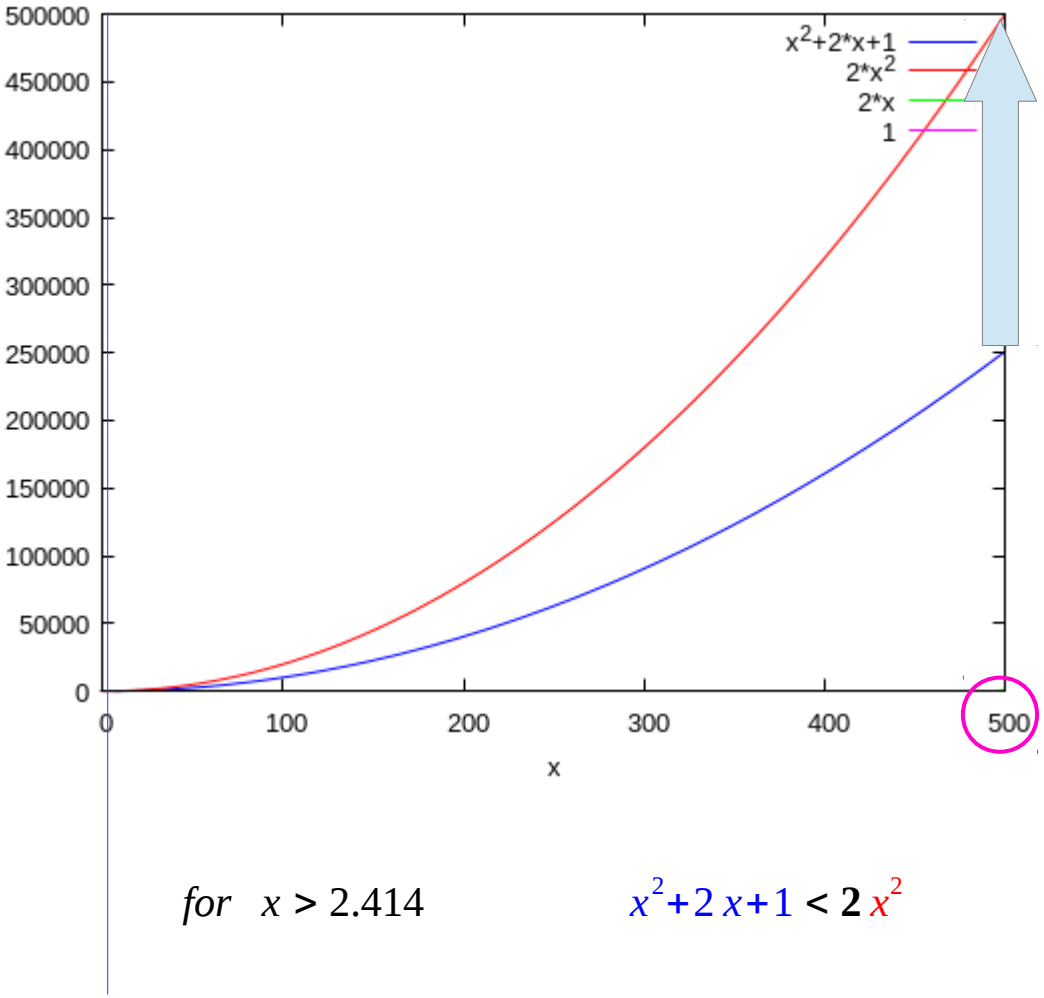
$2x$

1

Zoom Out

for $x > 2.414$ $\qquad x^2+2x+1 < 2x^2$

Large Range, C1=2



$2x^2$

distinguishable

x^2+2x+1

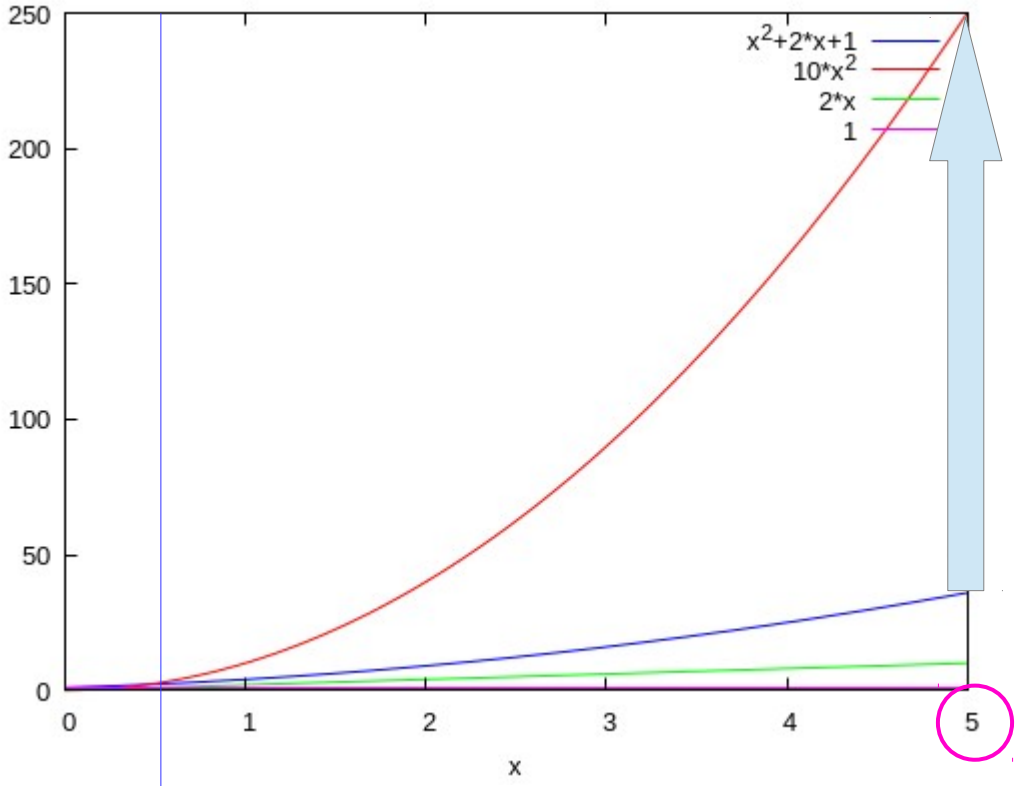
$2x$

1

Zoom Out

for $x > 2.414$ $\qquad x^2+2x+1 < 2x^2$

Small Range, C1=10



$\mathbf{10}\,x^2$

distinguishable

$x^2+2\,x+1$

$2\,x$

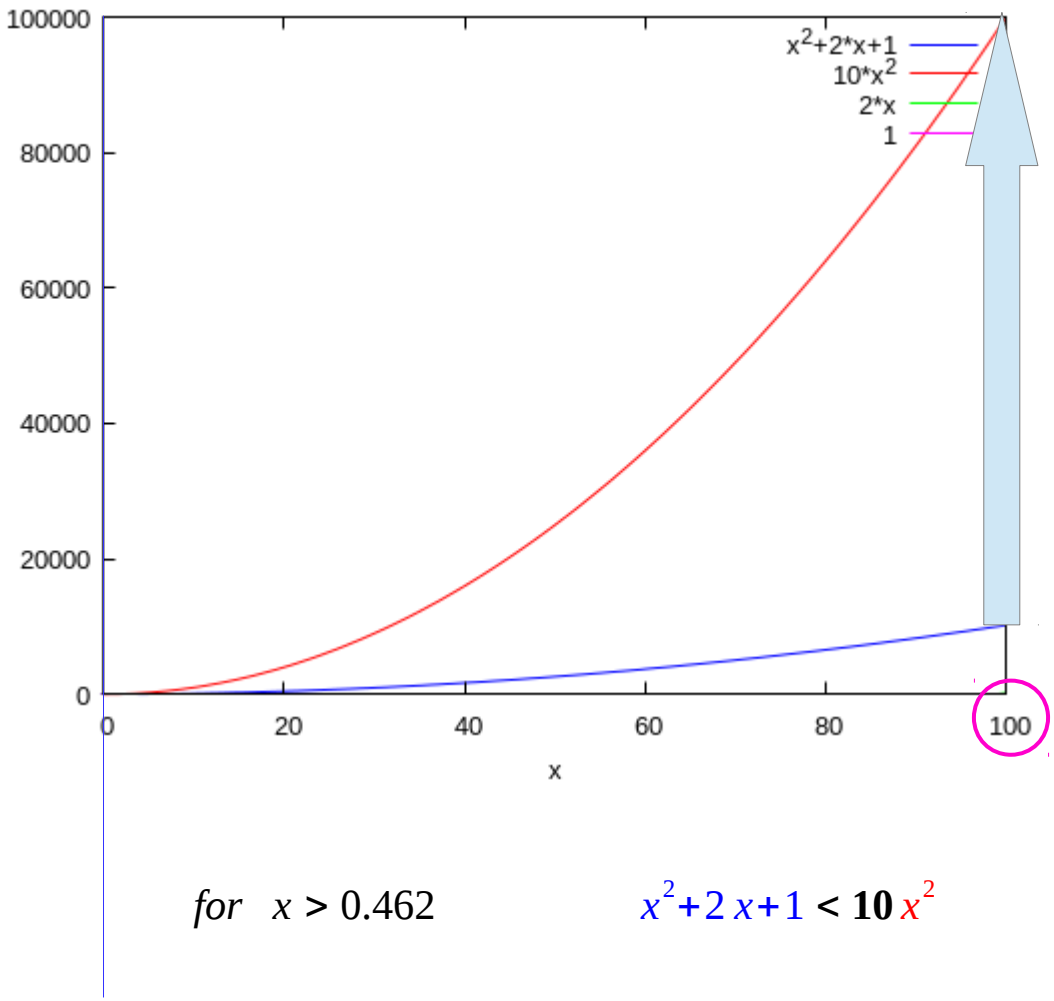
1

Zoom Out

for $x > 0.462$

$x^2+2\,x+1 < \mathbf{10}\,x^2$

Medium Range, C1=10



$\mathbf{10}\,x^2$

distinguishable

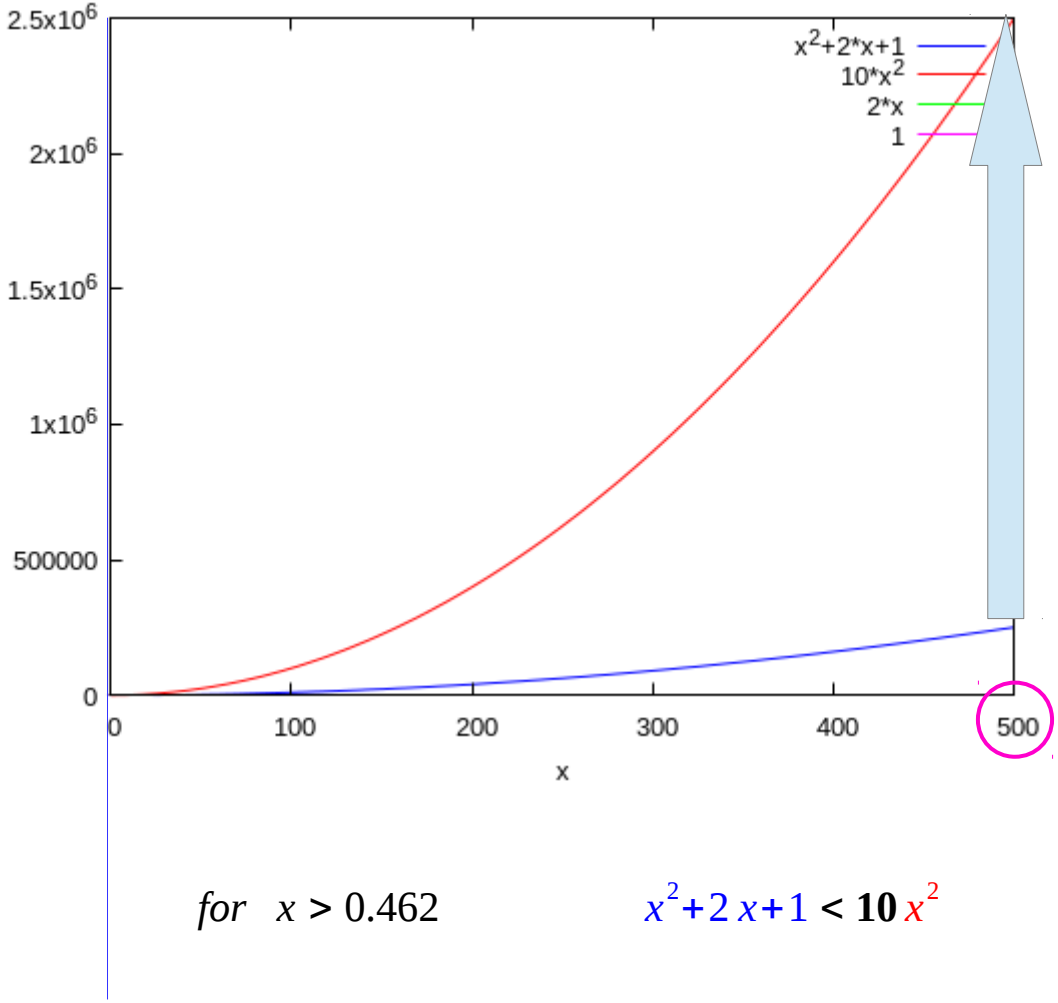
$x^2+2\,x+1$

Zoom Out

for $x > 0.462$

$x^2+2\,x+1 < \mathbf{10}\,x^2$

Large Range, C1=10



$\mathbf{10}\,x^2$

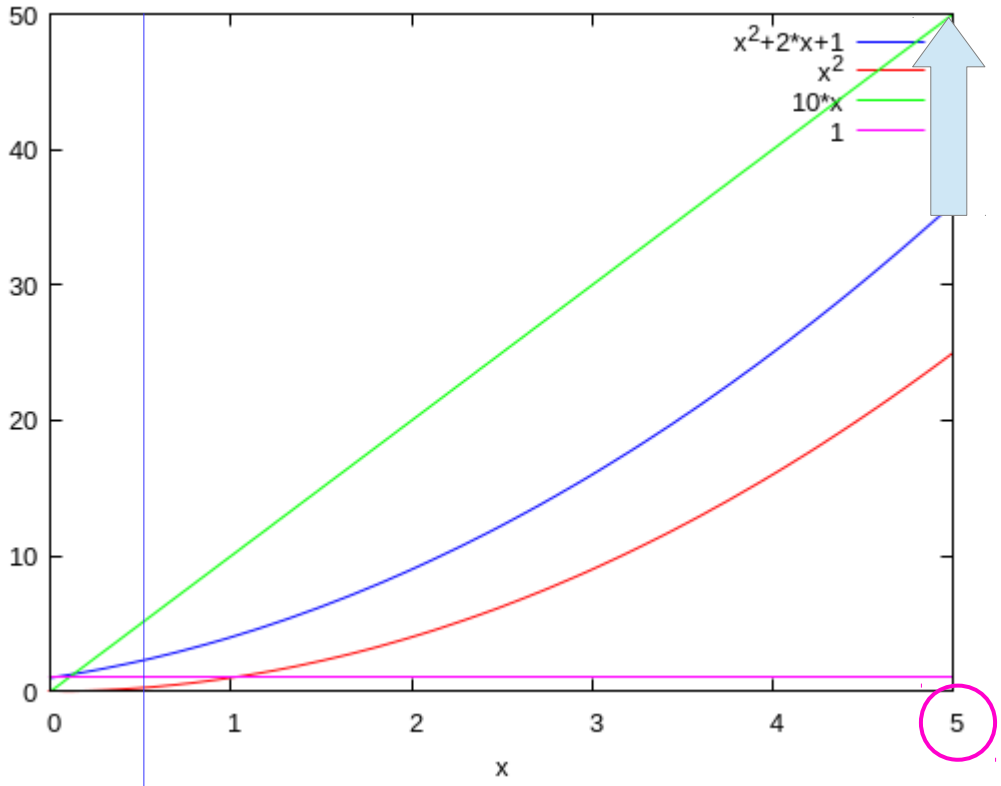
distinguishable

$x^2+2\,x+1$

Zoom Out

for $x > 0.462$ $\qquad x^2+2\,x+1 < \mathbf{10}\,x^2$

Small Range, C1=10



$\mathbf{10}\,x$

distinguishable

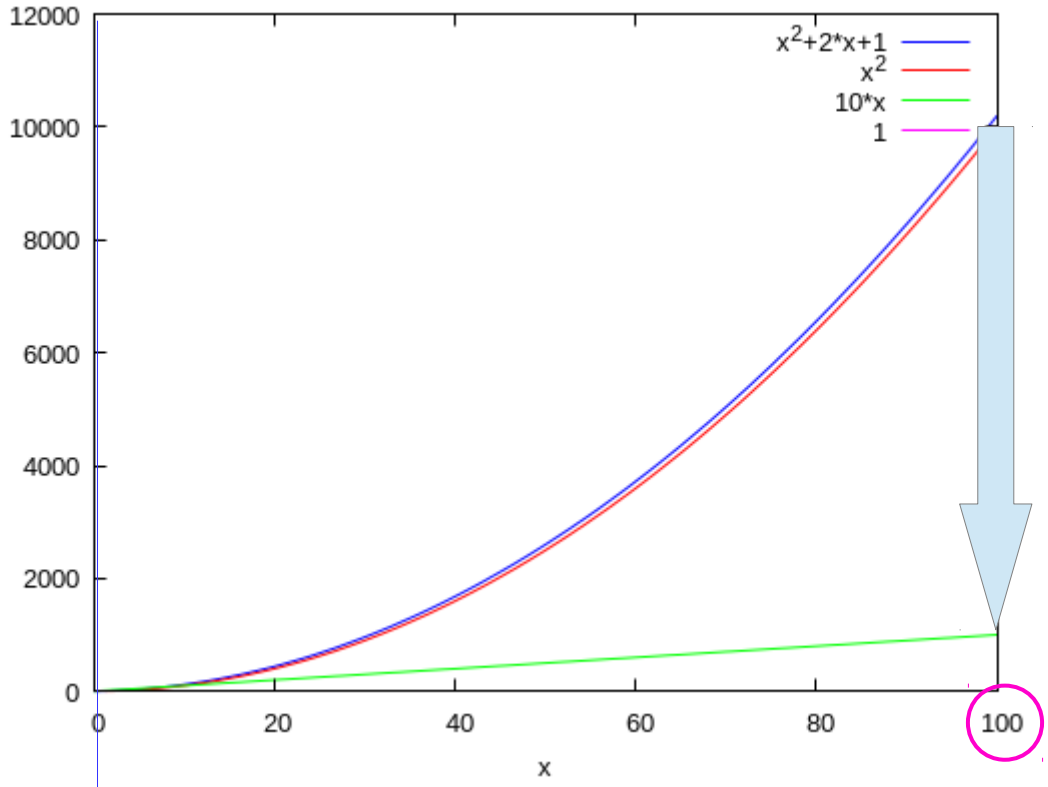
$x^2+2\,x+1$

x^2

1 → Zoom Out

for $0.127 < x < 7.873$ $\quad x^2+2\,x+1 < \mathbf{10}\,x$

Medium Range, C1=10



x^2+2x+1

x^2

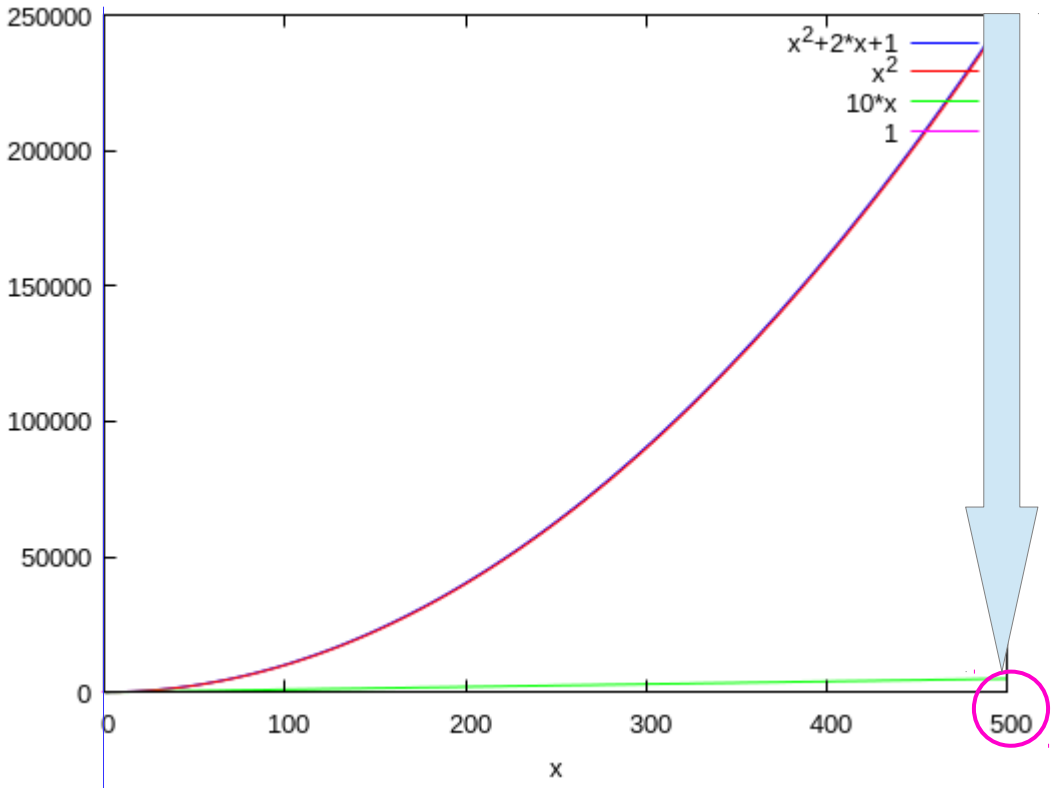
distinguishable

$10x$

Zoom Out

for $x > 7.873$ $\quad 10x < x^2+2x+1$

Large Range, C1=10



x^2+2x+1

x^2

distinguishable

$\mathbf{10}\,x$

Zoom Out

for $x > 7.873$ $\qquad \mathbf{10}\,x < x^2+2x+1$

Big Oh Notation

$for \quad x > -0.5$	$x^2 < x^2+2x+1$	$x^2 \ \ is \ \ O(x^2+2x+1)$	$x^2 \ \ is \ \ O(x^2)$
$for \quad x > 2.414$	$x^2+2x+1 < \mathbf{2}\,x^2$	$x^2+2x+1 \ \ is \ \ O(x^2)$	
$for \quad x > 0.462$	$x^2+2x+1 < \mathbf{10}\,x^2$	$x^2+2x+1 \ \ is \ \ O(x^2)$	
$for \quad x > 7.873$	$\mathbf{10}\,x < x^2+2x+1$	$\mathbf{10}\,x \ \ is \ \ O(x^2+2x+1)$	$\mathbf{10}\,x \ \ is \ \ O(x^2)$

Row Vector, Column Vector, Square Matrix

Matrix Notation

Matrix Addition

Scalar Multiplication

References

[1] http://en.wikipedia.org/
[2]