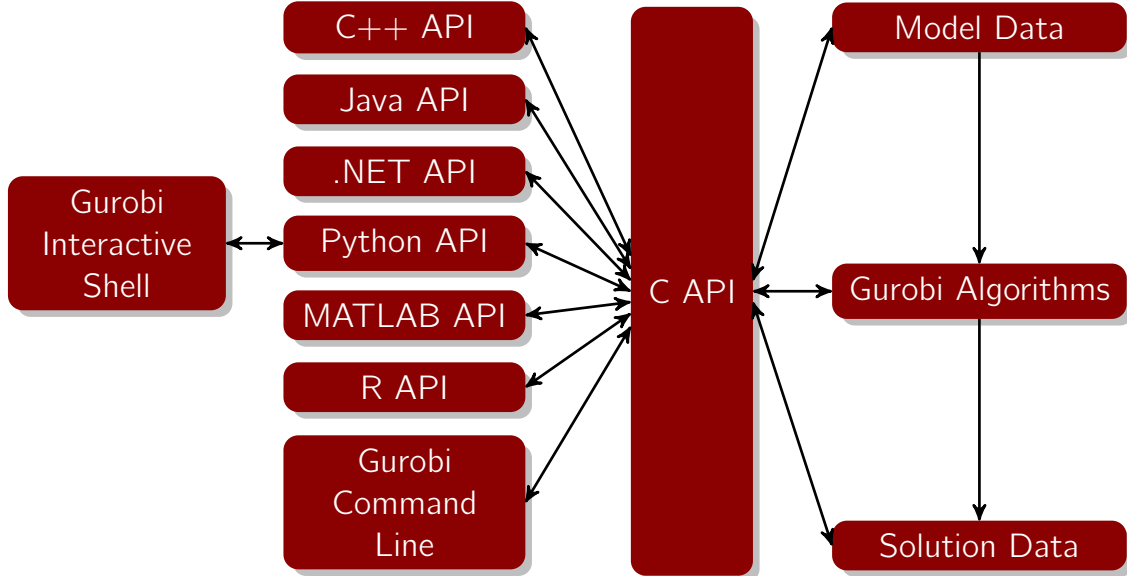




GUROBI

OPTIMIZATION



www.xiaozhuang.com

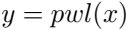
Wiederholungsfragen



A pixelated, black and white representation of the text "WAVE 2020". The letters are composed of a grid of black and white pixels, giving it a retro, digital appearance. The font is a clean, sans-serif style. The word "WAVE" is followed by a space, then "2020". The entire image is set against a white background.

1992-1993

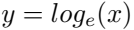
A row of ten grayscale images showing the progression of a handwritten digit '4' from a noisy, pixelated version to a clean, sharp version. The images are arranged horizontally, showing the digit becoming increasingly clear and defined from left to right.



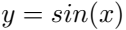
$$v = p_0 x^2 + p_1 x - 1 + \dots + p_n x$$

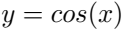


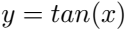












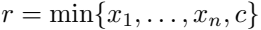


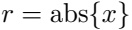










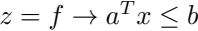




1991-1992









1011













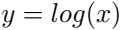




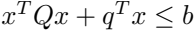












2020 + 2021 = 4041









































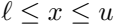
$\sin(x) + \cos(x) = \sqrt{2} \sin\left(x + \frac{\pi}{4}\right)$







$x^2 + x + 1$





1999

$x \left[\frac{1}{2} \right] = \frac{1}{2} x \left[\frac{1}{2} \right]$



$x_{\text{rev}} = x_{\text{cor}, x_{\text{rev}}}$

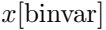


2020-2021

$x_{\text{var}} = x_{\text{old}} x_{\text{new}}$

$x_{\text{var}} = \text{ord}(\text{var})$

$$x[bivar] = bivar(x(v)) \text{ set the}$$



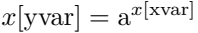
valis valis



www.wwi.org

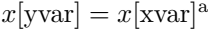
$$x[\text{var}] = p_0 x[\text{var}]^d + p_1 x[\text{var}]^{d-1} + \dots + p_{d-1} x[\text{var}] + p_d$$

www.arp.org



100% 100% 100%

$$x \log(x) = \log(x) x$$



www.sidex.org

2023-2024

var[1] = val[1]

[illegible]

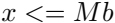
[illegible]

A pixelated, black and white representation of the word "EWE". The letters are thick and blocky, with a jagged, pixelated edge. The 'E' is on the left, followed by the 'W', and then the 'E' on the right. The entire image is composed of a grid of black and white pixels, giving it a retro, digital appearance.



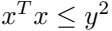


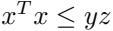






32 + 52 = 10









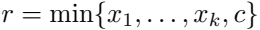
2021-2022-20

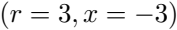
www.xp2xp.com

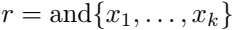






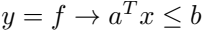






$\frac{1}{x^2} = x^{-2}$

Handwritten text: "The end of the world is near"









2012-2012

$$r = x_j + s_j \quad \text{for all } j = 1, \dots, k$$

$$r = c + s_{k+1}$$

$$z_1 + \dots + z_{k+1} = 1$$

$$SOS1(s_j, z_j) \quad \text{for all } j = 1, \dots, k + 1$$

$$s_j \geq 0 \quad \text{for all } j = 1, \dots, k + 1$$

$$z_j \in \{0, 1\} \quad \text{for all } j = 1, \dots, k + 1$$



www.xixixi.com

2013







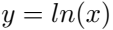




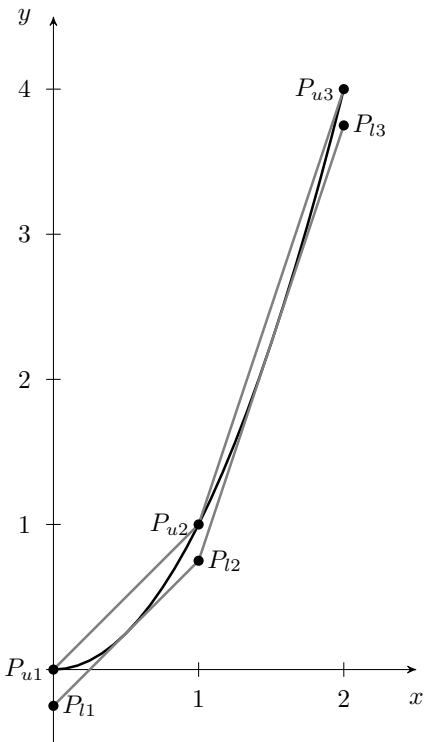
$r \geq x_j$ for all $j = 1, \dots, k$

$r \geq c$

$$x^n + x^{n-1} + \dots + x + 1$$













Pravda, pravda, pravda,

Pr1025, Pr21075, Pr22375



















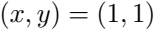
100% 100%

2020











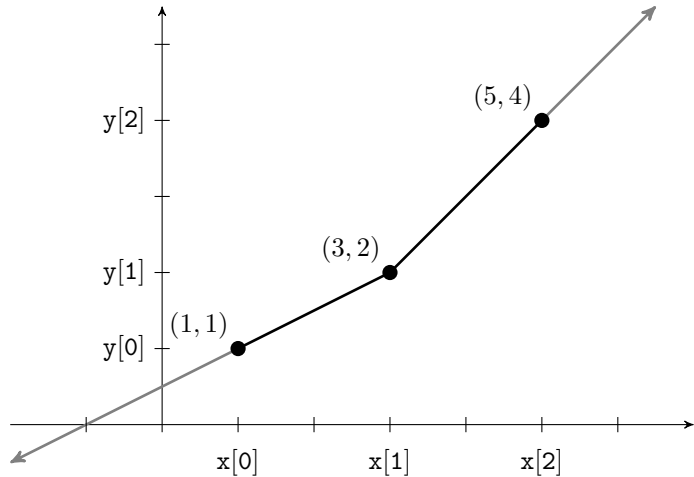






















150 = 4

101010

100005

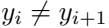
$$\begin{aligned}
 & \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right] = \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right] \cdot \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right] \\
 & \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right] = \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right] \cdot \left[\begin{array}{c} \mathbf{X} \\ \mathbf{Y} \end{array} \right]
 \end{aligned}$$

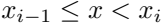
$$f(v) = \begin{cases} y_1 + \frac{y_2 - y_1}{x_2 - x_1} (v - x_1), & \text{if } v \leq x_1, \\ y_i + \frac{y_{i+1} - y_i}{x_{i+1} - x_i} (v - x_i), & \text{if } v \geq x_i \text{ and } v \leq x_{i+1}, \\ y_n + \frac{y_n - y_{n-1}}{x_n - x_{n-1}} (v - x_n), & \text{if } v \geq x_n. \end{cases}$$

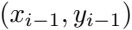


$$(x-1, y-1), (x+1, y+1), (x+1, y-1), (x-1, y+1)$$

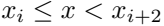


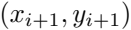


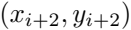








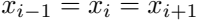


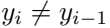




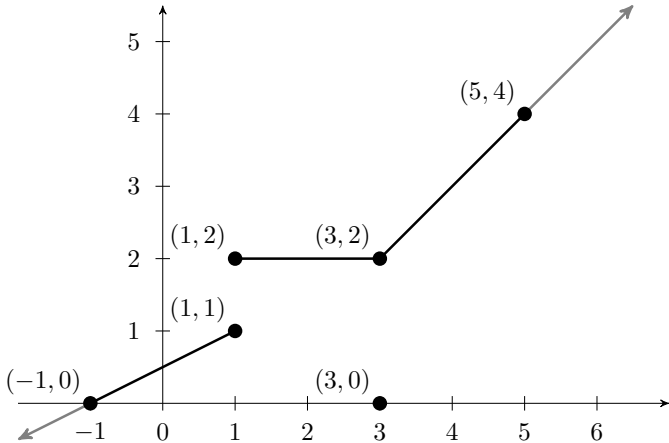


$$(x_2, x_2), (x_1, x_1), (x_2, x_1), (x_1, x_2), (x_2, x_2)$$





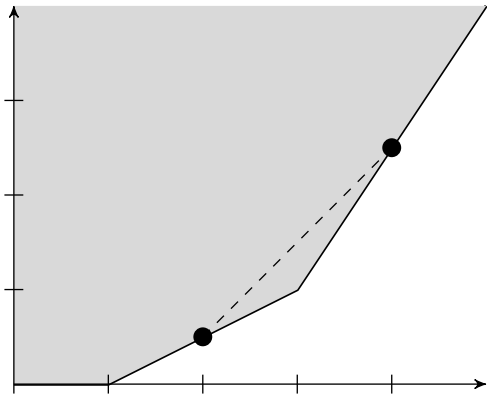




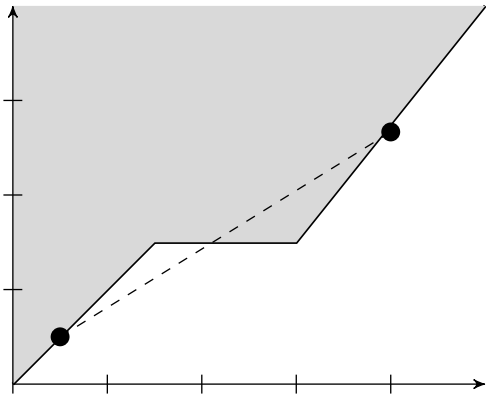
(-1, 0, 1, 2, 3, 0, 1, 2, 3, 0, 1, 2)



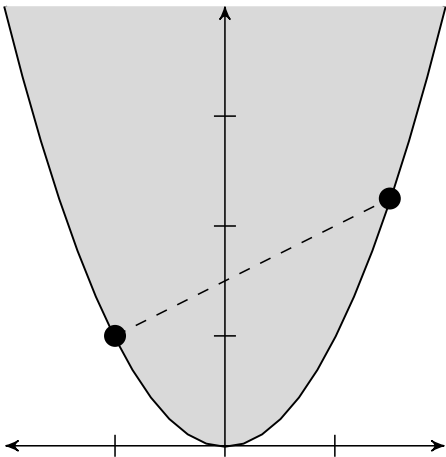








3x2 + 4x2 + 2x2 + 2x2 + 2







$$\bar{a}x = \lambda^t Ax \leq \lambda^t b = -\beta + \sum_{j: \bar{a}_j < 0} \bar{a}_j U_j + \sum_{j: \bar{a}_j > 0} \bar{a}_j L_j,$$























minimize $c'x$

subject to $Ax \geq b$

$x \geq 0$

$$\begin{array}{ll}
 \text{maximize} & b'y \\
 \text{subject to} & A'y \leq c \\
 & y \geq 0
 \end{array}$$



















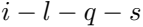




































$$(10x01^2+2x01x02+2x02x01+2x02^2)/2$$





A pixelated, grayscale image of a stylized, symmetrical figure or object, possibly a logo or a character, rendered in a low-resolution, blocky style. The figure has a central vertical axis of symmetry. It features a wide, flat base, a narrow waist, and a broad, flared top. The top part of the figure has a complex, multi-lobed shape with several small, dark, rectangular protrusions. The entire image is composed of a grid of squares, with varying shades of gray and black, giving it a retro, digital appearance.

A large, pixelated, grayscale letter 'Q' centered on a white background. The letter is composed of various shades of gray, from light to dark, creating a blocky, digital appearance. The 'Q' is slightly tilted to the right.

A 15x15 grayscale pixelated image of a stylized letter 'C'. The letter is formed by a thick, dark gray border. The interior of the 'C' is filled with a lighter gray, and the rest of the 15x15 grid is white. The letter is positioned in the upper-left to middle-right area of the grid.

$$\begin{array}{ll}
\text{minimize} & y - 1.3x(1 - z) + (1 - z) \\
\text{subject to} & 2y - 3x + 1.7w = 1.7 \\
& -y + x + xz(1 - v) \geq 0 \\
& -y \leq 0, \\
& v, w, x, y, z \in \{0, 1\}.
\end{array}$$







$$1 - (1 + x + x^2)(x + x^2) = 1 - x + x^2$$

100







$$\text{base_value} = \max\{\text{bestsol}, \text{bestbd} + \text{gap}, \text{bestbd} + \text{agg}\}$$

W E A T H E R











12345

100100050001

0123

$\ln 2 \approx 0.693147$

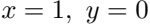
$$x - 6y = 1$$

$$0.333x - 2y = .333$$

0501050105

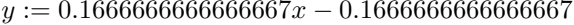
$$x - 6 \cdot (0.1665x - 0.1665) = 1$$

$$\Leftrightarrow 0.001x = 0.001$$

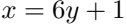


$$x - 6y = 1$$

$$0.3333333333333333x - 2y = 0.3333333333333333$$



$$\begin{aligned}
 x - 6 \cdot (0.16666666666666667x - 0.16666666666666667) &= 1 \\
 \Leftrightarrow 2 \cdot 10^{-16}x + 1 + 2 \cdot 10^{-16} &\approx 1
 \end{aligned}$$



1234567890







$$\min \quad 0$$

$$s.t. \quad x \leq 0$$

$$x \geq 10^{-10}$$









100-100-100



$\left(\frac{1}{2} \ln \frac{1+x}{1-x} \right) = \frac{1}{2} \ln \frac{1+x}{1-x}$









Handwritten text: *Handwritten text: 10/10/10*







1000



$\frac{d}{dx} \left(x^2 + 1 \right) = 2x$



$$\begin{array}{rcl}
10^{-7}x + 10y & \leq & 10 \\
x + 10^4z & \leq & 10^3 \\
x, y, z & \geq & 0,
\end{array}$$

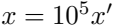
10-7 10-1

105

$$10^{-2}x' + 10y \leq 10$$

$$10^2x' + 10z \leq 1$$

$$x', y, z \geq 0,$$



10-2010-2

100-3 1001

$$\begin{aligned}
 x - 10^6 y &\geq 0 \\
 y &\in [0, 10]
 \end{aligned}$$

$$x - 10y_1 \geq 0$$

$$y_1 - 10y_2 = 0$$

$$y_2 - 10y_3 = 0$$

$$y_3 - 10y_4 = 0$$

$$y_4 - 10y_5 = 0$$

$$y_5 - 10y = 0$$

$$y \in [0, 10]$$

A pixelated, black and white graphic of the text "100% 2011". The characters are rendered in a bold, blocky font with a dithered or pixelated texture. The "100" is on the left, followed by a percentage sign, then "2011" on the right. The overall style is reminiscent of early digital art or video game titles.

$$\begin{aligned}
 x - 10^3 y' &\geq 0 \\
 y' &\in [0, 10^4]
 \end{aligned}$$

10-23-2020





$$x \leq 10^6 y$$

$$x \geq 0$$

$$y \in \{0, 1\},$$

WELCOME TO THE



$$x \leq 10^3 y$$

$$x \geq 0$$

$$y \in \{0, 1\}$$



100

$$6 \cdot 10^6 / 0.00099 = 6.0606 \cdot 10^9$$













100%

$$\|b, e\| = \frac{\|A^{-1}b\|}{\|A^{-1}(b+e)\|} \leq \frac{\|b\|}{\|b+e\|}.$$

W.A. = Waxweasel

$\pi(A)$

$=$

$\lambda_1 \lambda_2 \lambda_3$





no(A)

=

no(A) 1

100%



max

cx

s.t.

$Ax \leq b.$

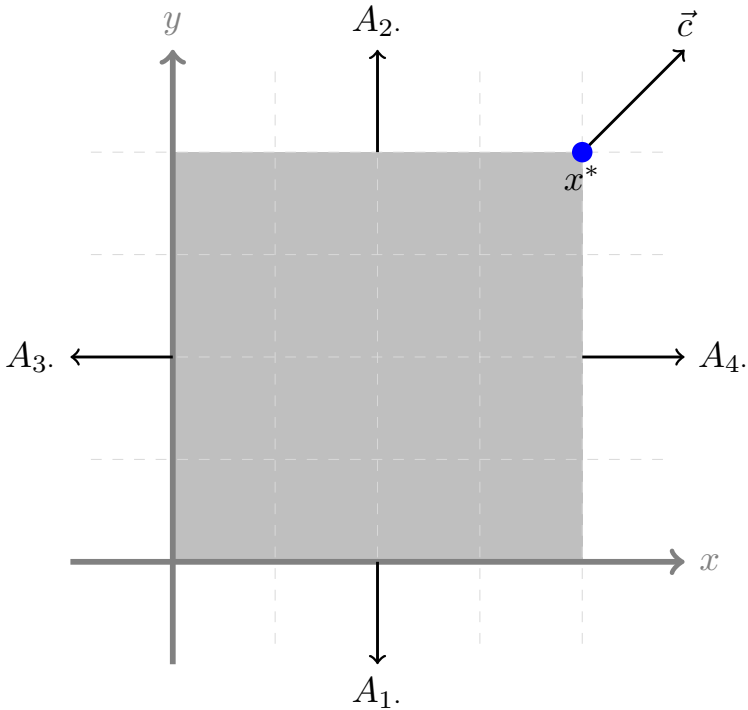
$$\begin{array}{llll}
\max & x + y & \vec{c} = & (1, 1) \\
s.t. & -x \leq 0 & A_1 = & (-1, 0) \\
& x \leq 1 & A_2 = & (1, 0) \\
& -y \leq 0 & A_3 = & (0, -1) \\
& y \leq 1 & A_4 = & (0, 1).
\end{array}$$



Waxen waxen
waxen waxen
waxen waxen









1001

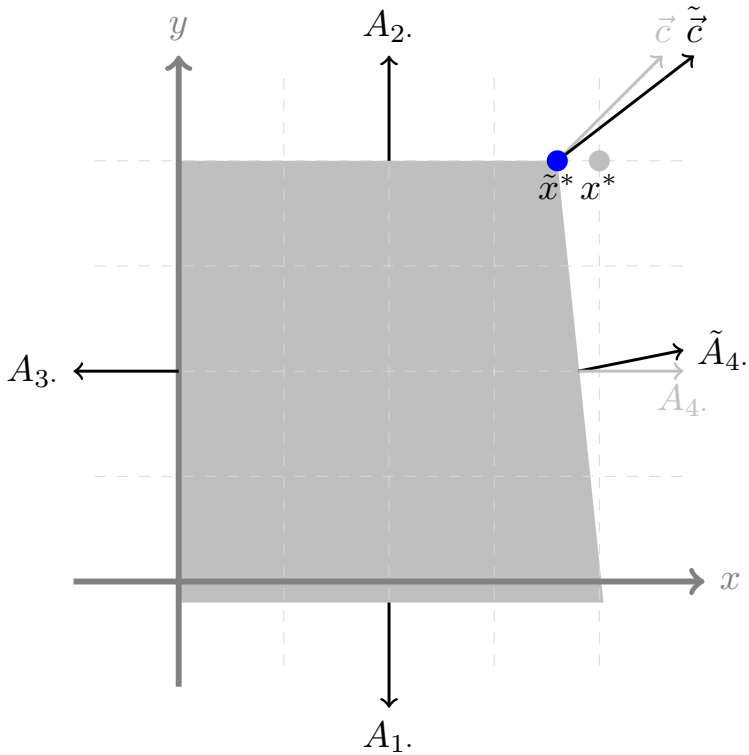


11

11

11

11



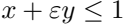




100%

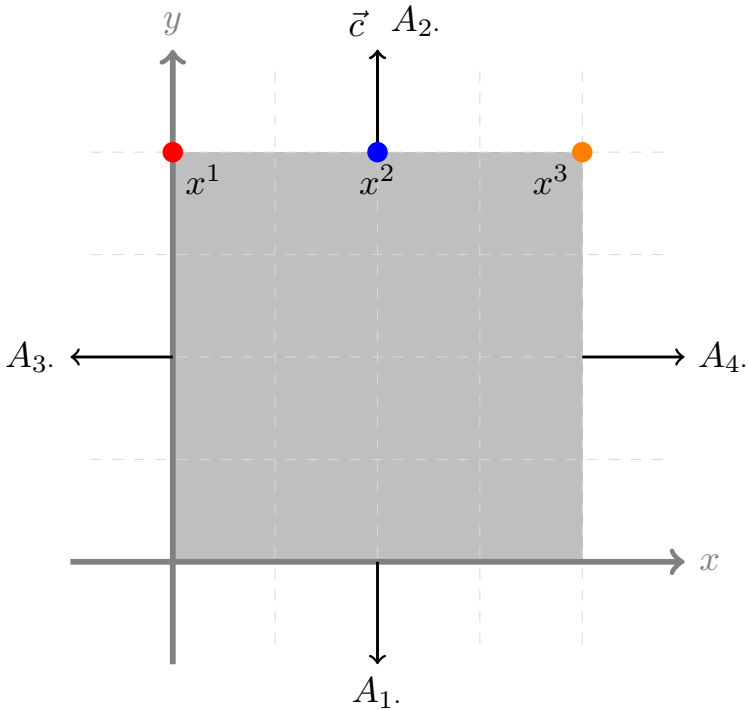


100%



A pixelated, black and white graphic of the text "100% + 50% 100%". The text is rendered in a bold, blocky font with a dithered or pixelated appearance. The characters are composed of various shades of gray and black pixels. The overall style is reminiscent of early digital art or low-resolution computer graphics. The text is centered horizontally and occupies most of the width of the image.

$$\begin{array}{llll}
\max & & y & \vec{c} = (0, 1) \\
s.t. & -x \leq 0 & A_1. = & (-1, 0) \\
& x \leq 1 & A_2. = & (1, 0) \\
& -y \leq 0 & A_3. = & (0, -1) \\
& y \leq 1 & A_4. = & (0, 1).
\end{array}$$

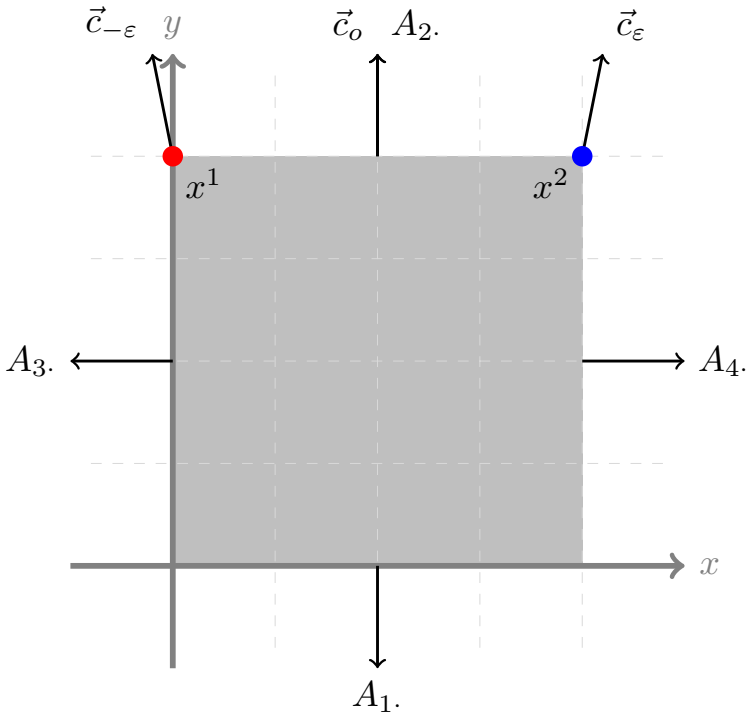








$$\begin{array}{llll}
\max & \varepsilon x + y & \vec{c} = & (\varepsilon, 1) \\
s.t. & -x \leq 0 & A_1. = & (-1, 0) \\
& x \leq 1 & A_2. = & (1, 0) \\
& -y \leq 0 & A_3. = & (0, -1) \\
& y \leq 1 & A_4. = & (0, 1).
\end{array}$$





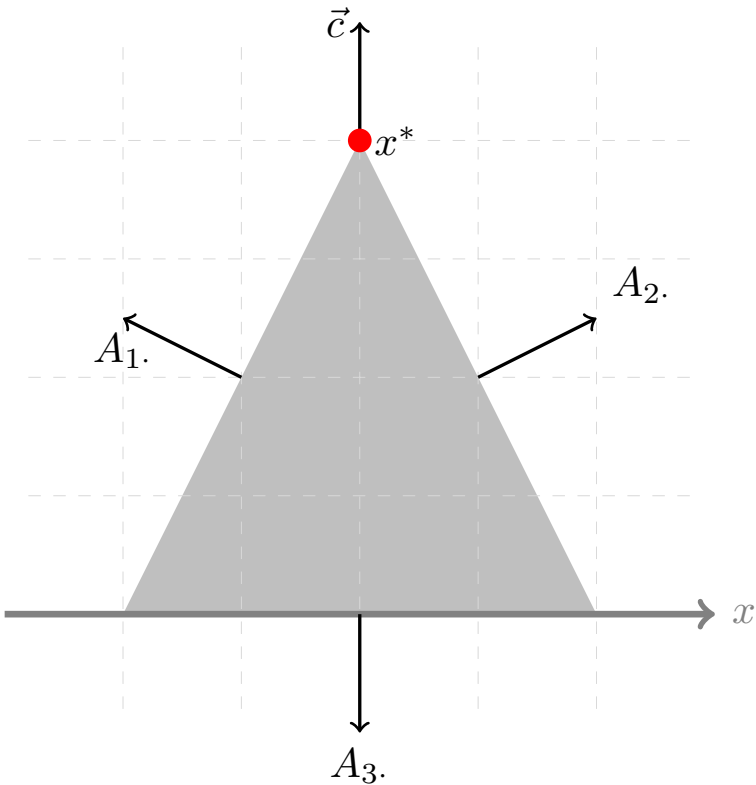


100% 1

100%



$$\begin{array}{llll}
\max & & y & \vec{c} = (0, 1) \\
s.t. & -x + \varepsilon y \leq 1 & A_1. = & (-1, \varepsilon) \\
& x + \varepsilon y \leq 1 & A_2. = & (1, \varepsilon) \\
& -y \leq 0 & A_3. = & (0, -1)
\end{array}$$

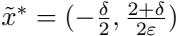






1001







||x*

—

x*

||1

=

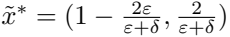
|0|
—
2

+

|0|
—
e



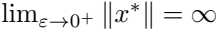
















$$\sin(2\pi \frac{i}{10^6})x + \cos(2\pi \frac{i}{10^6})v \leq 1, v \in \{1, \dots, 10^6\},$$



