$$\min_{x} -3x_1 - 5x_2$$

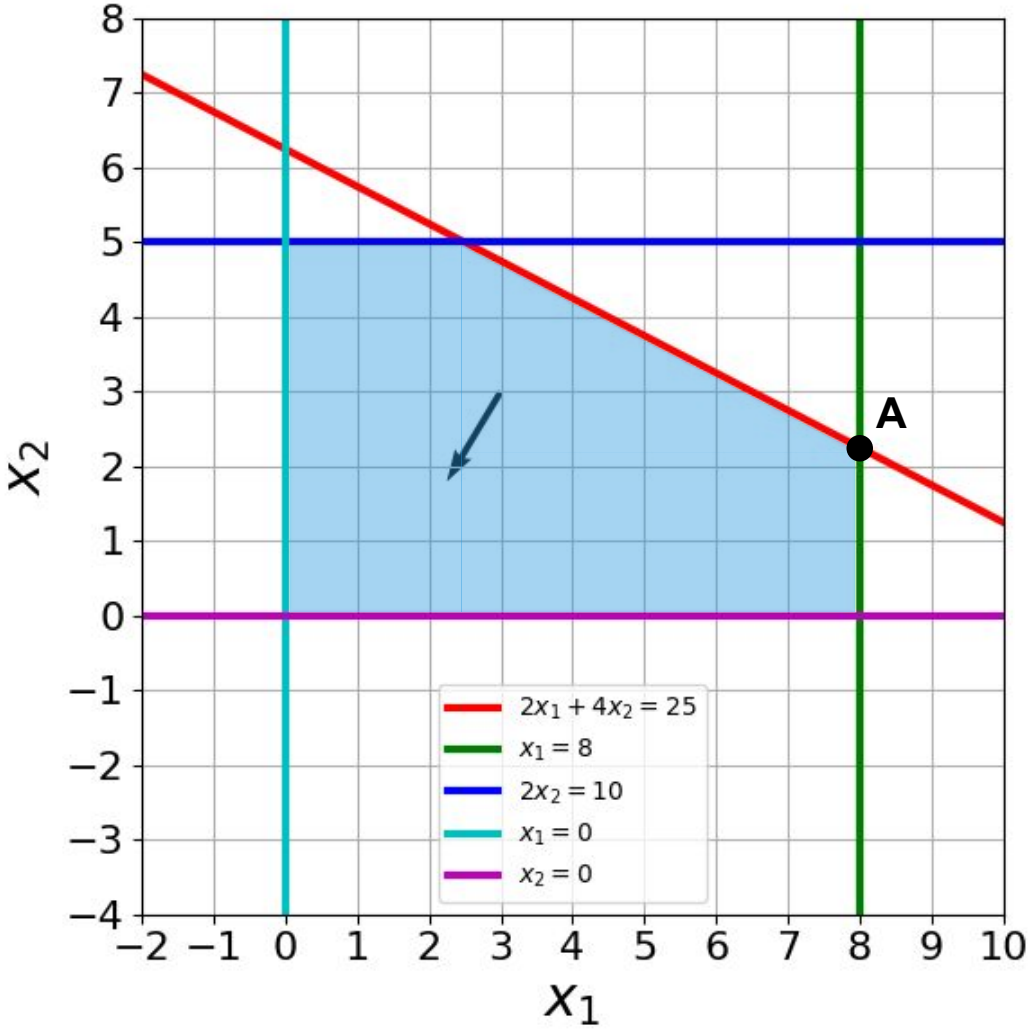
$$\text{s.t. } 2x_1 + 4x_2 \leq 25$$

$$x_1 \leq 8$$

$$2x_2 \leq 10$$

$$x_1, x_2 \geq 0$$

$$x_1, x_2 \in \mathbb{Z}$$



$$\min_x -3x_1 - 5x_2$$

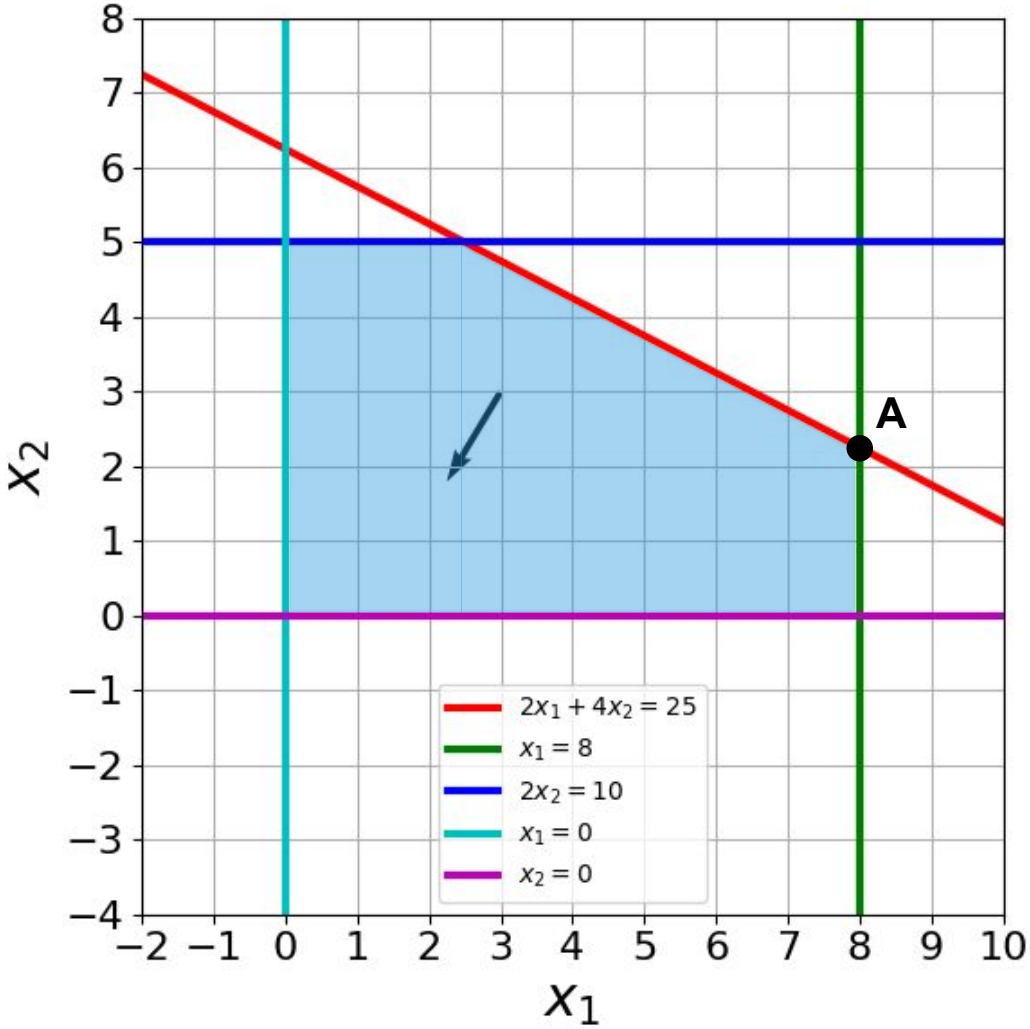
$$\text{s.t. } 2x_1 + 4x_2 \leq 25$$

$$x_1 \leq 8$$

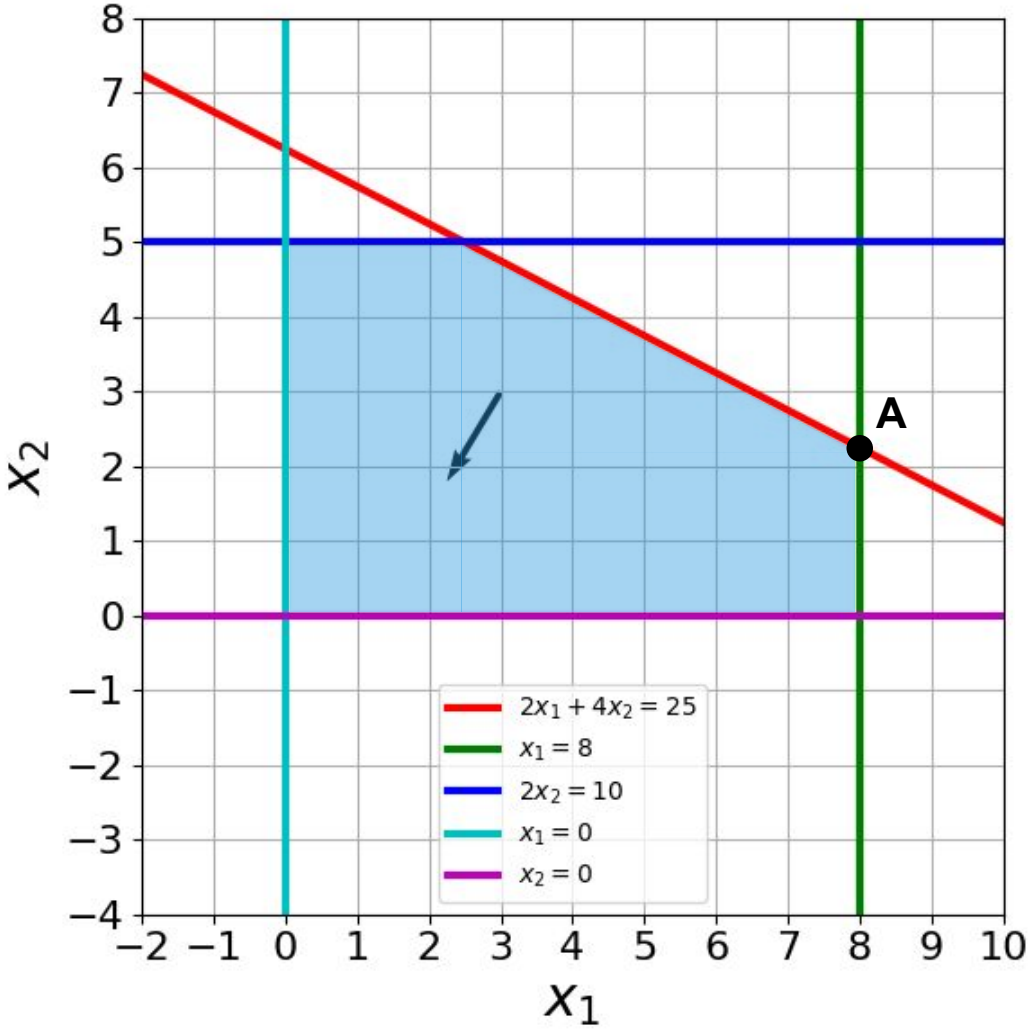
$$2x_2 \leq 10$$

$$x_1, x_2 \geq 0$$

~~$x_1, x_2 \in \mathbb{Z}$~~

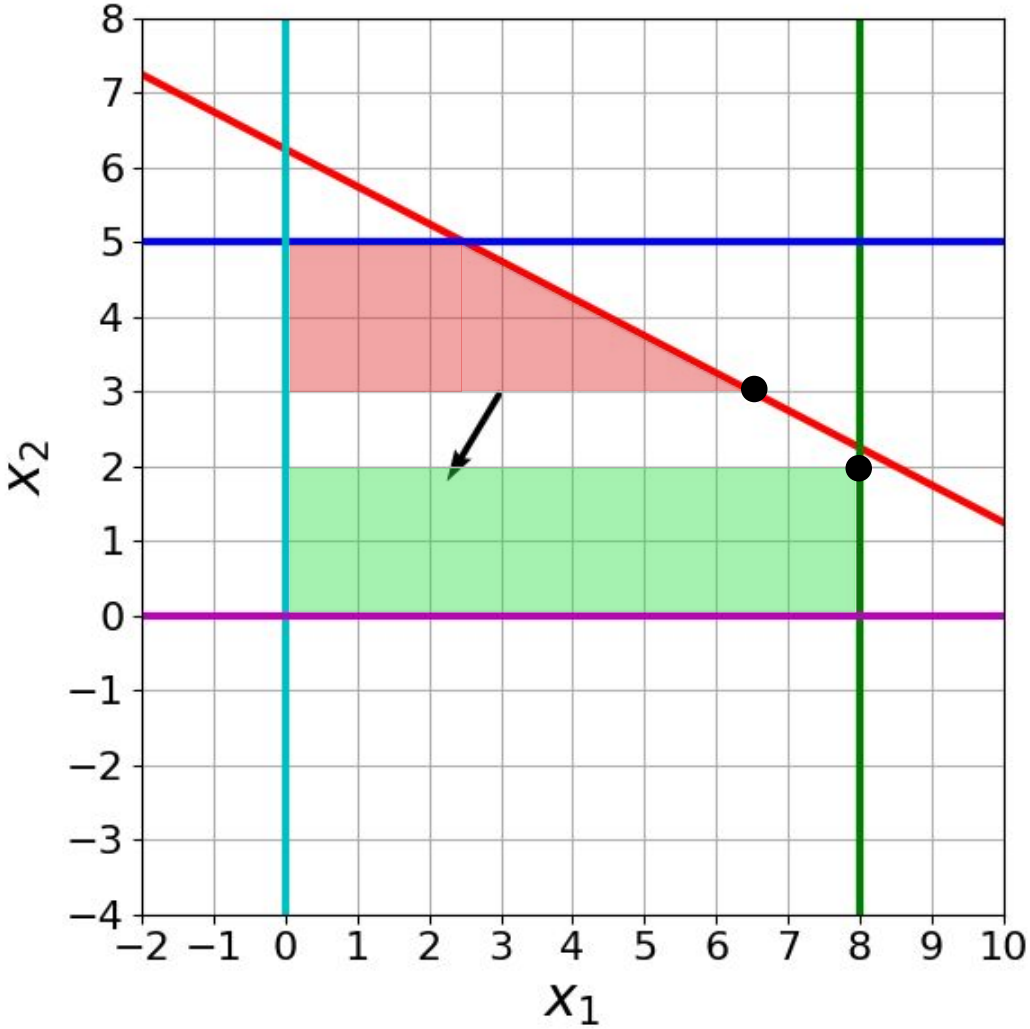


A = (8, 2.25)
Cost = -35.25



1

A = (8, 2.25)
Cost = -35.25


8
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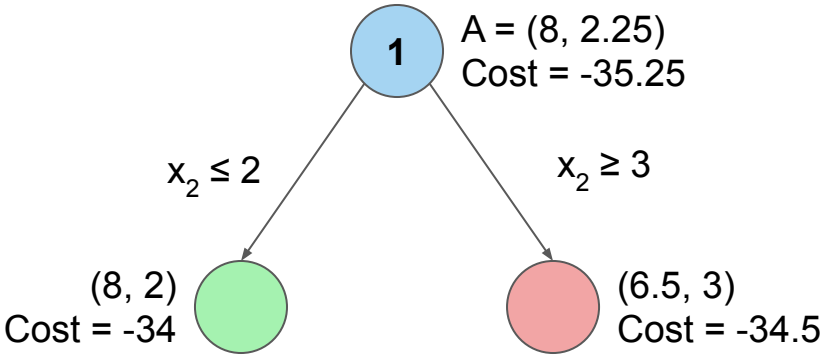
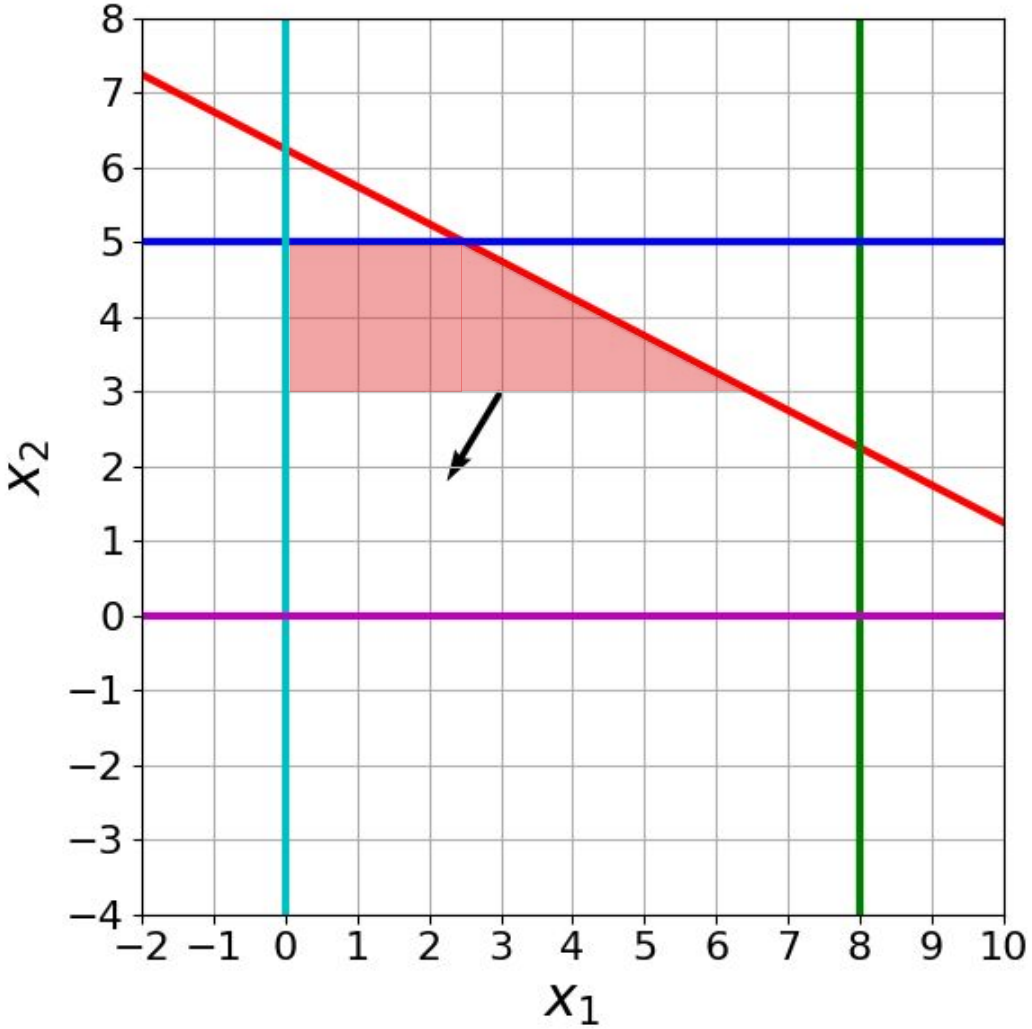
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
(6.5, 3)
Cost = -34.5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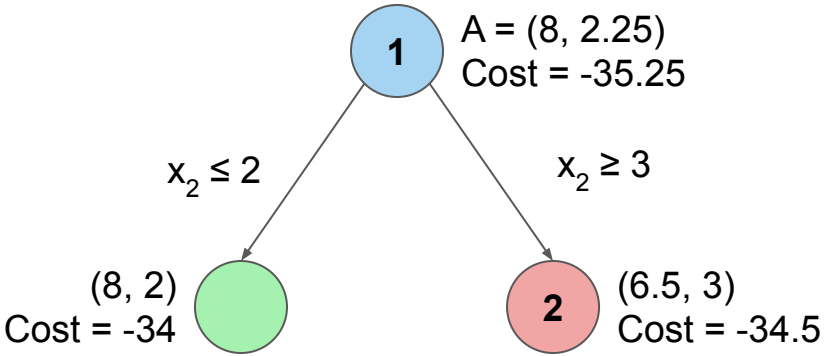
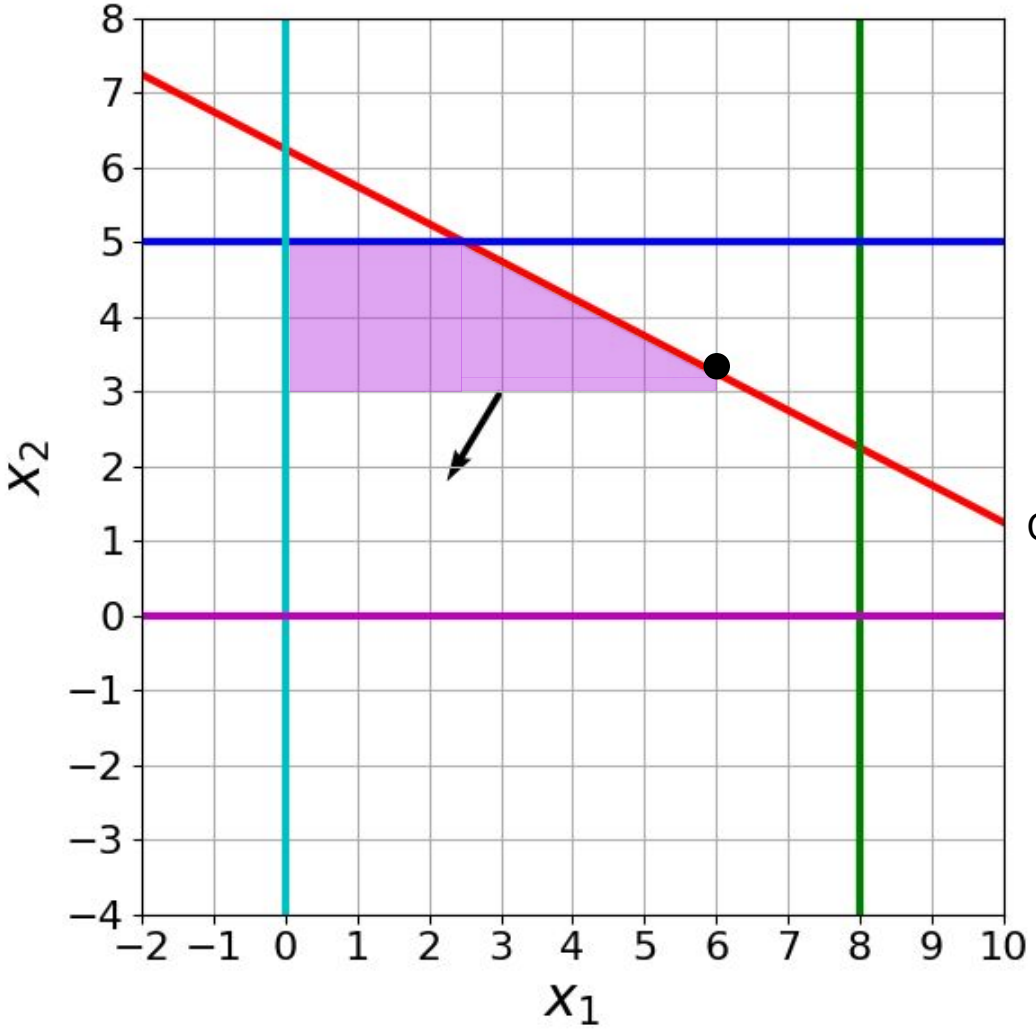
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
2
(6.5, 3)
Cost = -34.5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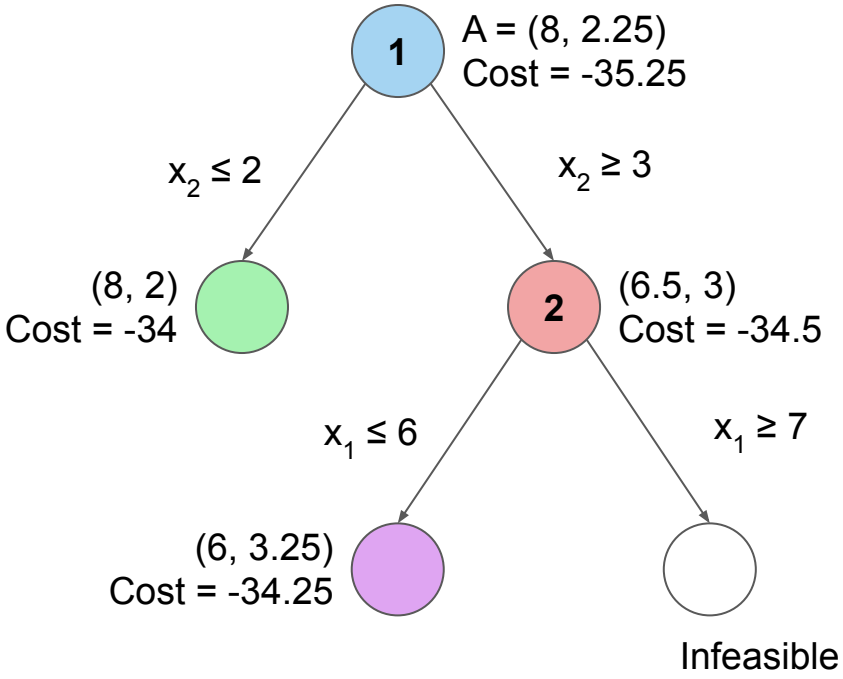
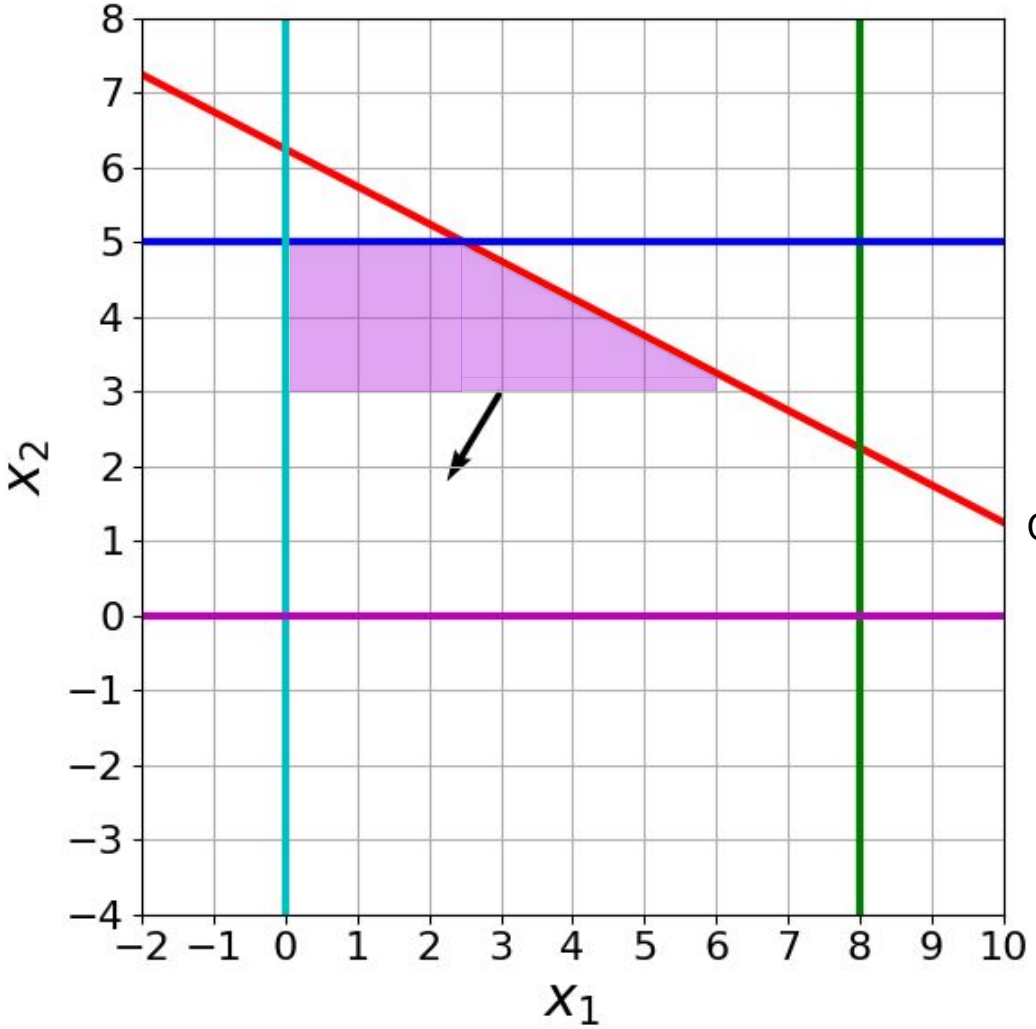
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
2
(6.5, 3)
Cost = -34.5
$x_1 \leq 6$
$x_1 \geq 7$
(6, 3.25)
Cost = -34.25
Infeasible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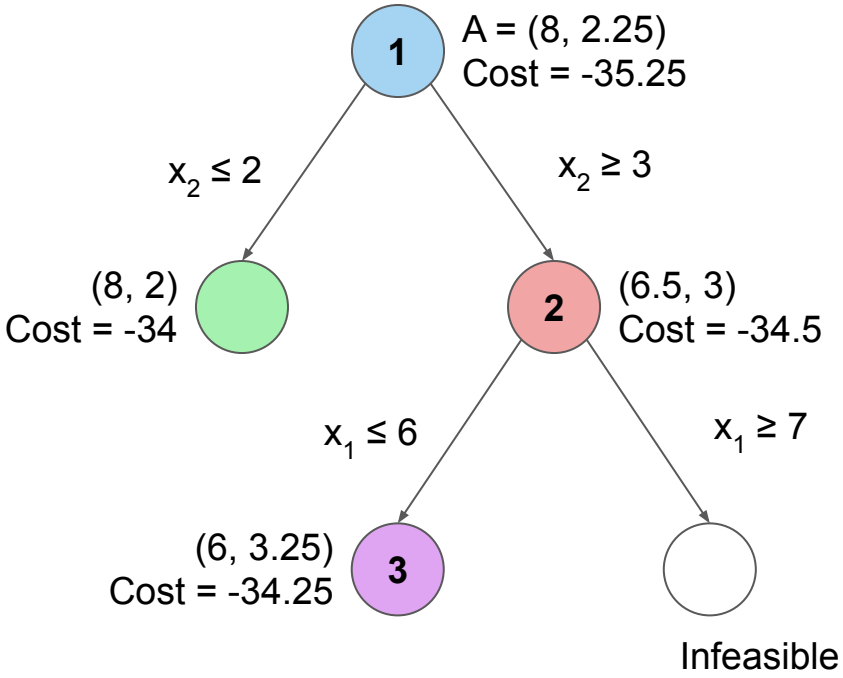
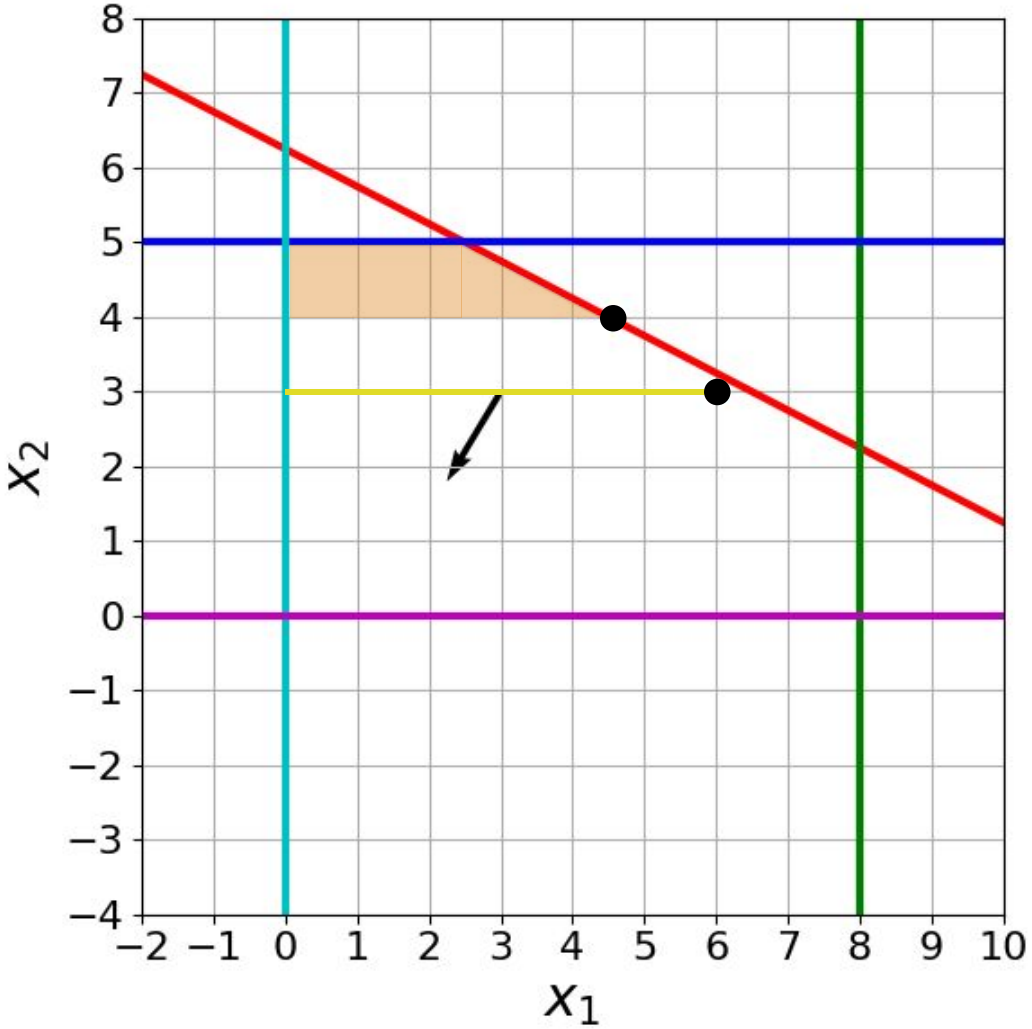
−4
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
2
(6.5, 3)
Cost = -34.5
$x_1 \leq 6$
$x_1 \geq 7$
(6, 3.25)
Cost = -34.25
3
Infeasible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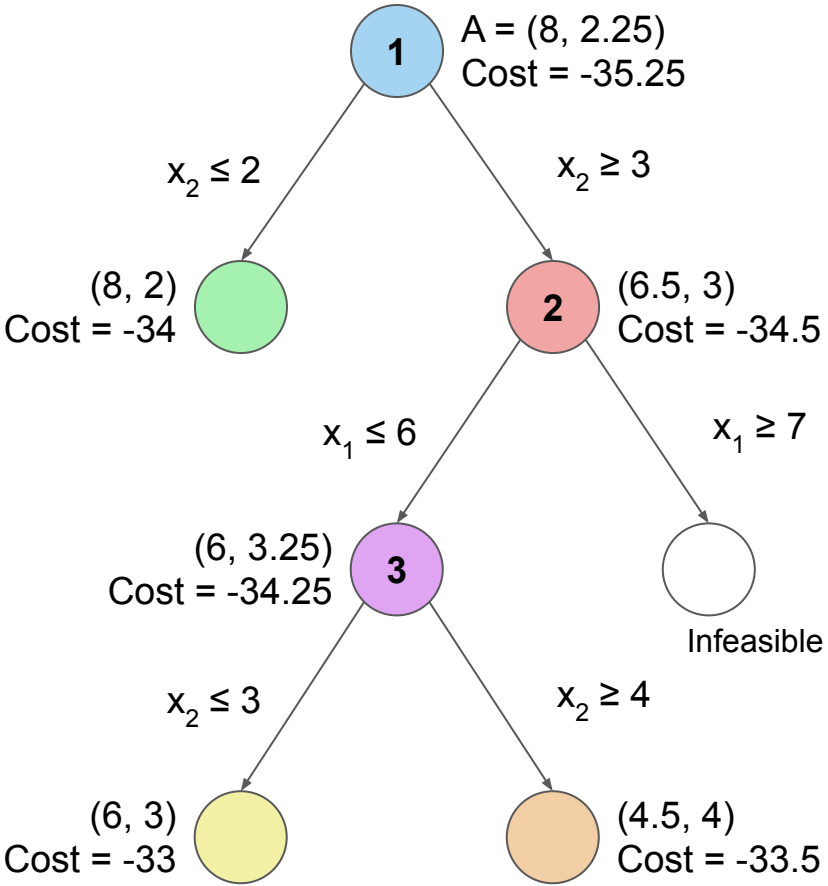
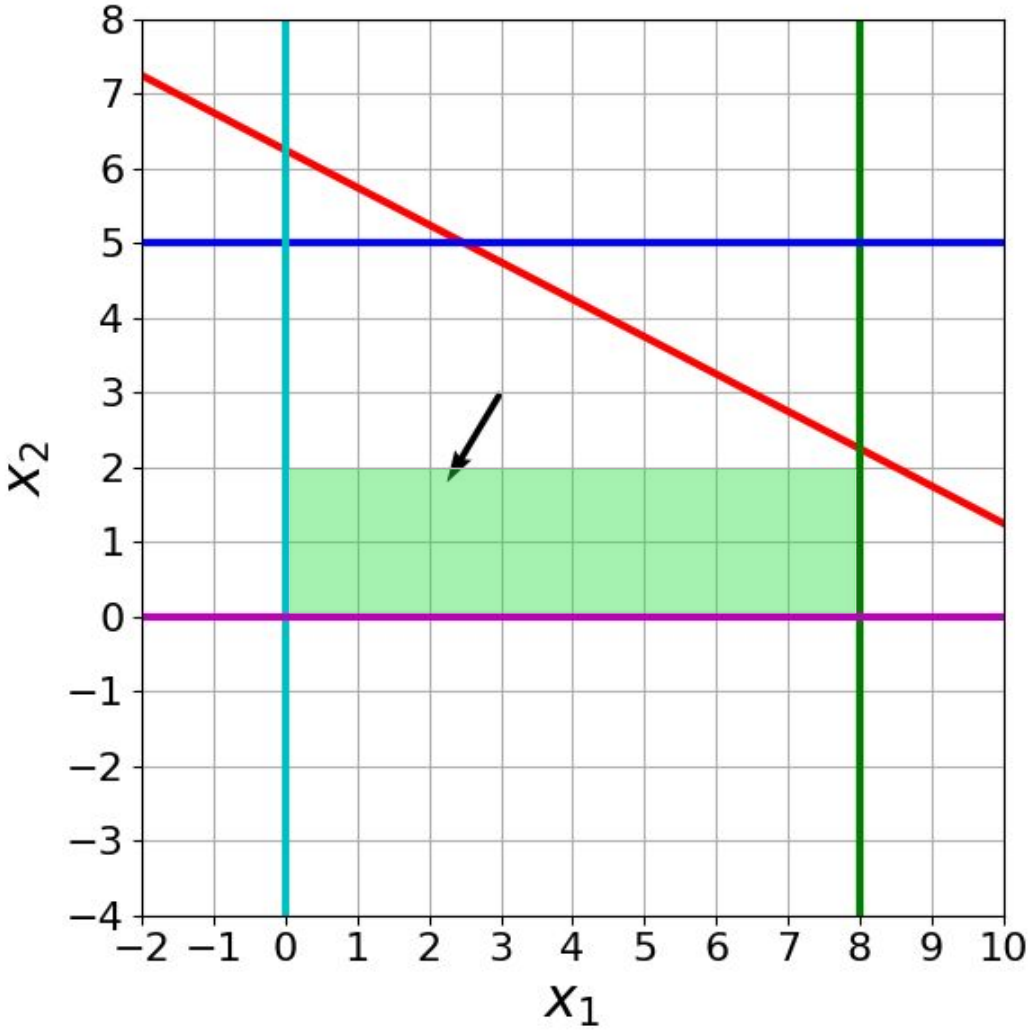
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
2
(6.5, 3)
Cost = -34.5
$x_1 \leq 6$
$x_1 \geq 7$
(6, 3.25)
Cost = -34.25
3
Infeasible
$x_2 \leq 3$
$x_2 \geq 4$
(6, 3)
Cost = -33
(4.5, 4)
Cost = -33.5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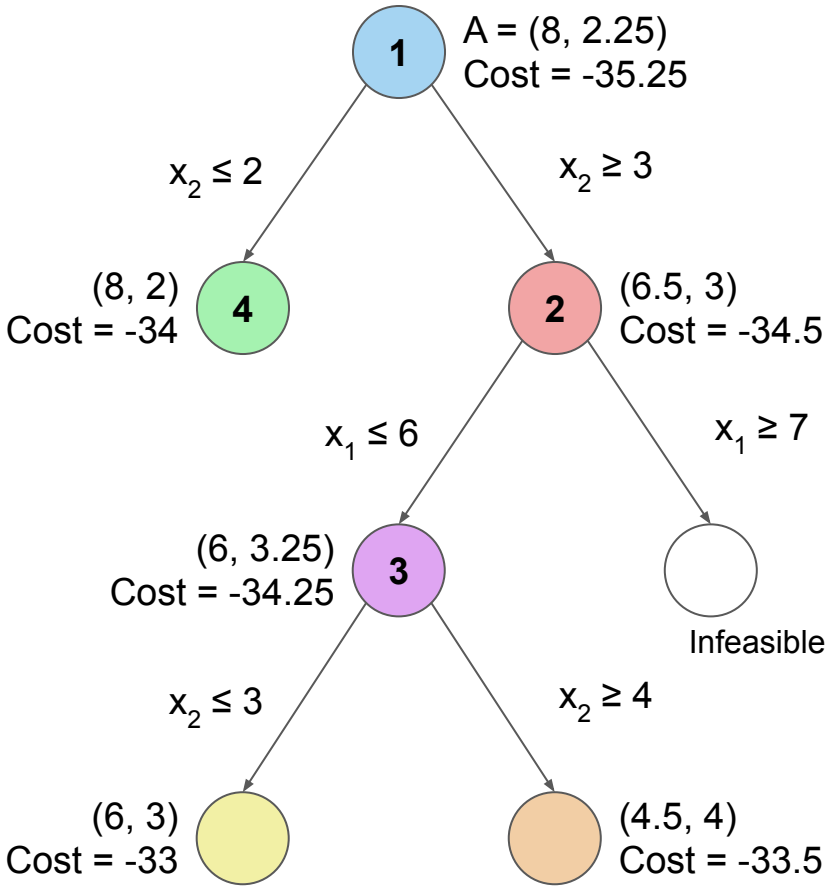
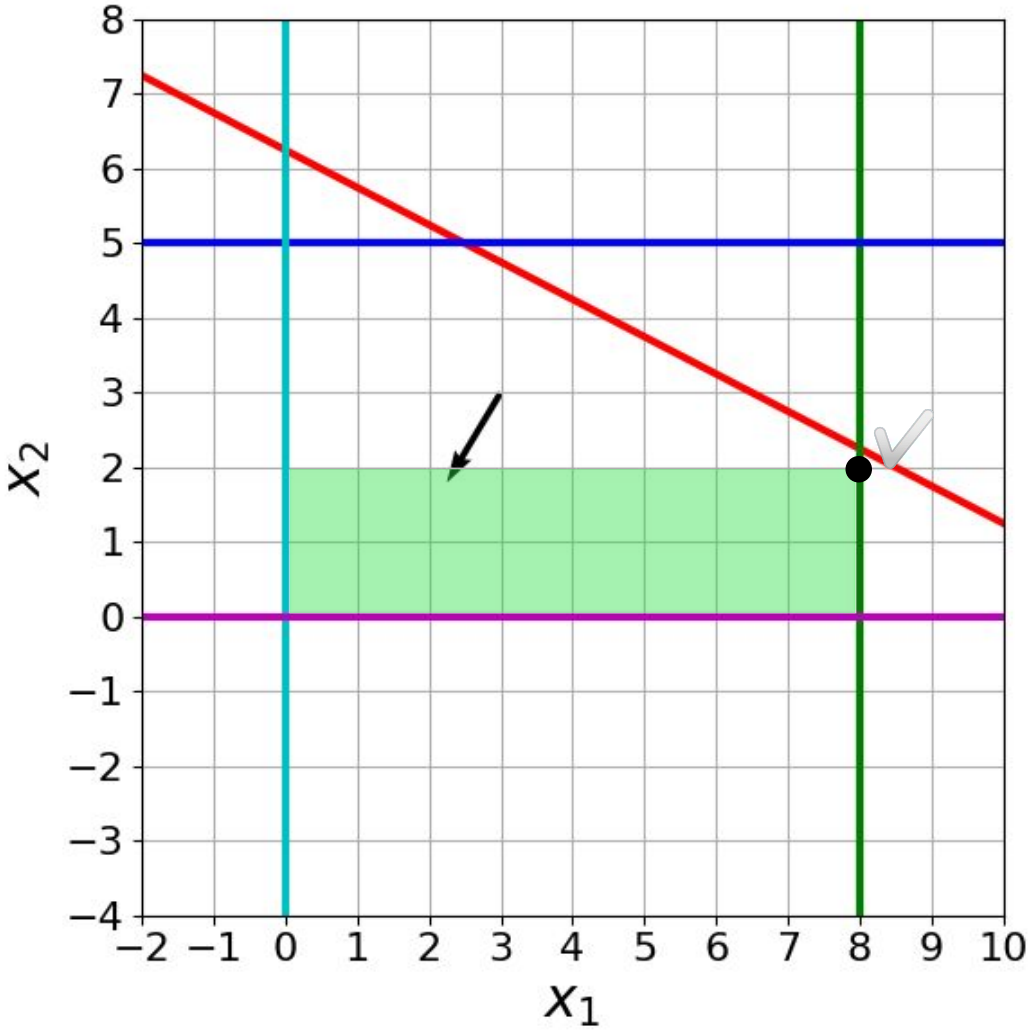
−4
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
4
2
(6.5, 3)
Cost = -34.5
$x_1 \leq 6$
$x_1 \geq 7$
(6, 3.25)
Cost = -34.25
3
Infeasible
$x_2 \leq 3$
$x_2 \geq 4$
(6, 3)
Cost = -33
(4.5, 4)
Cost = -33.5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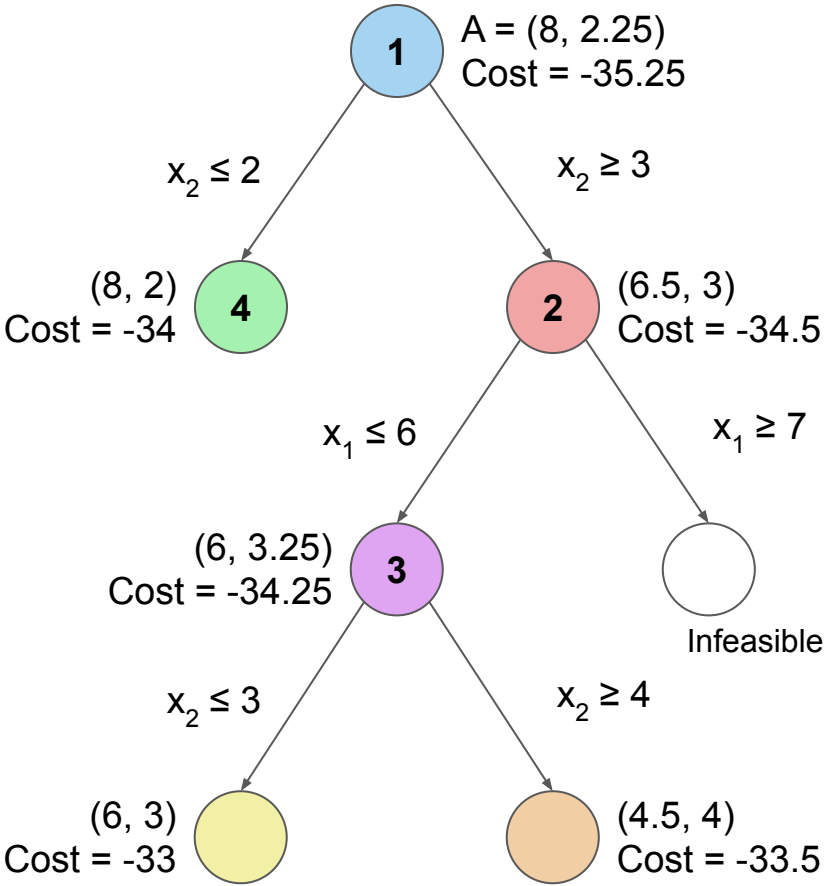
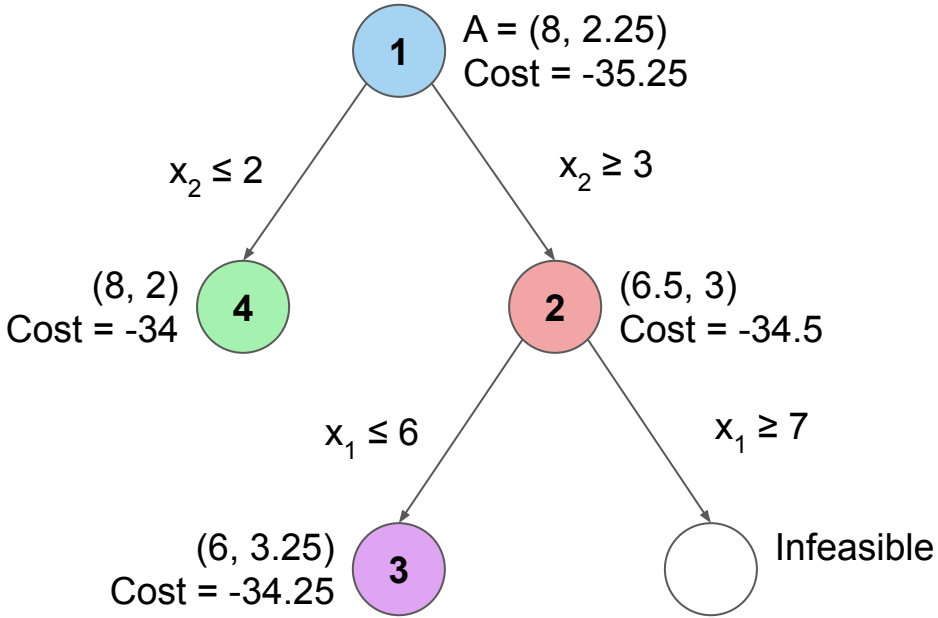
−2 −1 0 1 2 3 4 5 6 7 8 9 10
x_2
x_1


1
A = (8, 2.25)
Cost = -35.25
$x_2 \leq 2$
$x_2 \geq 3$
(8, 2)
Cost = -34
4
2
(6.5, 3)
Cost = -34.5
$x_1 \leq 6$
$x_1 \geq 7$
(6, 3.25)
Cost = -34.25
3
Infeasible
$x_2 \leq 3$
$x_2 \geq 4$
(6, 3)
Cost = -33
(4.5, 4)
Cost = -33.5



Return: (8, 2), cost = -34