



MITx: 15.053x Optimization Methods in Business Analytics



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Lecture 2

Lecture questions due Sep 20, 2016 at 19:30 IST

**Recitation 2****Problem Set 2**

Homework due Sep 20, 2016 at 19:30 IST



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PART A

For each of the following, determine whether it is a convex set. Answer all three parts before checking your answer.

$$\{(x, y) : 2x + 3y \leq 10, x \geq 0, y \geq 0\}$$

☒ Convex set☐ Not a convex set**EXPLANATION****Solution**

The correct answer is: Convex set

$$\{x : |x - 3| \geq 2, x \geq 0\}$$

☒ Not a convex set ✓

☐ Convex set

EXPLANATION

Solution

The correct answer is: Not a convex set

$$\{x : |x - 3| \geq 4, x \geq 0\}$$

☐ Not a convex set

☒ Convex set ✓

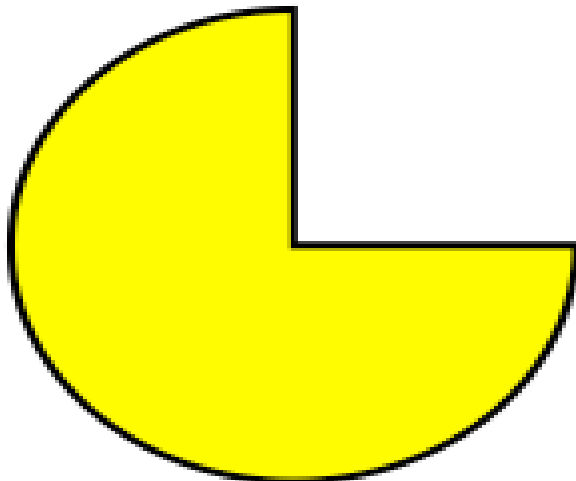
EXPLANATION

Solution

The correct answer is: Convex set

PART B

For each of the following figures, answer whether it is convex or not. Provide answers for all figures before checking your answer.



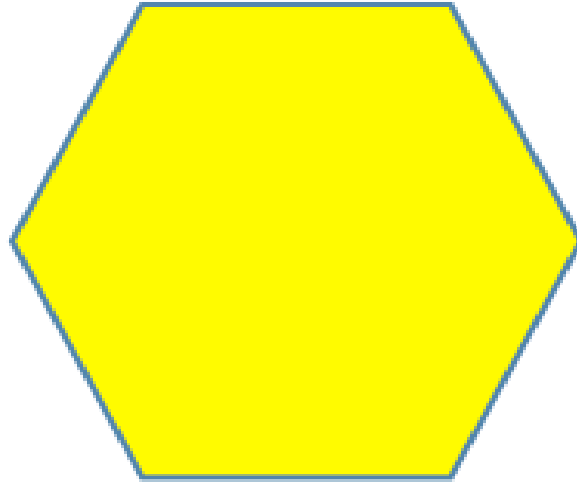
☐ Convex set

☒ Not a convex set ✓

EXPLANATION

Solution

The correct answer is: Not a convex set



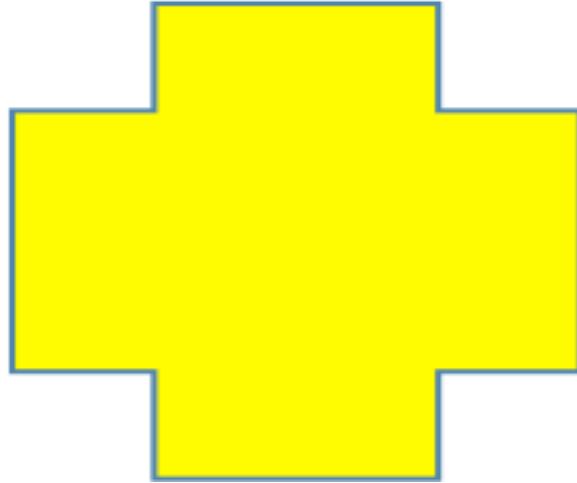
☐ Not a convex set

☒ Convex set ✓

EXPLANATION

Solution

The correct answer is: Convex set



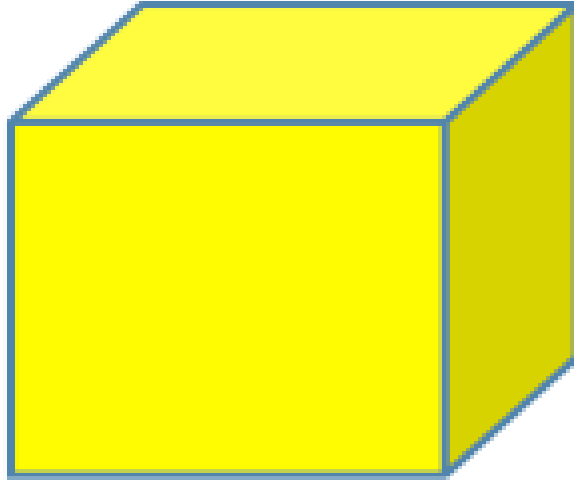
☒ Not a convex set ✓

☐ Convex set

EXPLANATION

Solution

The correct answer is: Not a convex set



☒ Convex set ✓

☐ Not a convex set

EXPLANATION

Solution

The correct answer is: Convex set

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