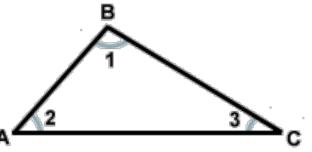# Geometry

❓ Prove the angles of △ABC sum to 180°

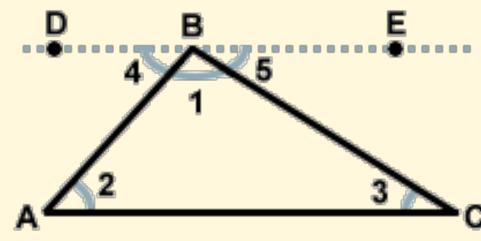**🤖 GPT-4o**

Start by assuming, for contradiction, that the sum is not 180°. We'll introduce a new angle, ∠4 ... ✗

📖✏️ SketchPad + GPT-4o

✏️ Draw line DE parallel to AC

∠4 is congruent to ∠2, and ∠5 is congruent to ∠3. ∠1, ∠4, and ∠5 form a straight angle = 180°. So ∠1, ∠2, ∠3 add up to 180°. ✓

(a)

Math Function

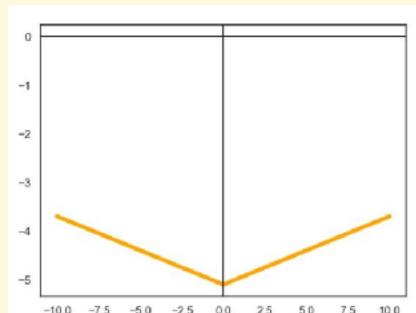**❓** Is f(x) an convex function?

$$f(x) = 0.14\,|x| - 5.09$$

🤖 GPT-4o

It is convex for x>0 but concave for x<0 ✗

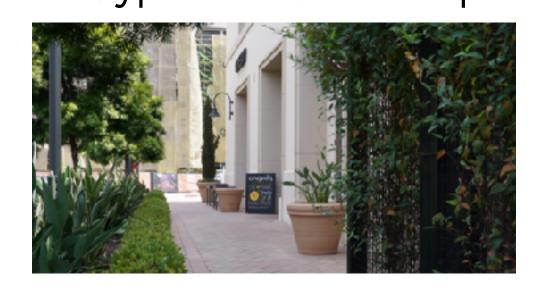**📖✏️ SketchPad + GPT-4o**

✏️ Plot the function

convex because line between any two points lie above the graph. ✓

(b)

Visual Search

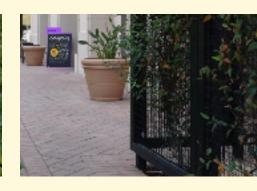**❓** According to the board, what is the type of the shop?

🤖 GPT-4o

The sign in the image reads "ceremonial matcha,". it's a cafe. ✗

📖✏️ SketchPad + GPT-4o

✏️ Use `sliding_window` to find the board

✏️ I see a board in patch 2 and 3 and will zoom in

 The zoomed-in image shows the text "**corepower YOGA**". So it's a yoga studio ✓

(c)

Spatial Reasoning
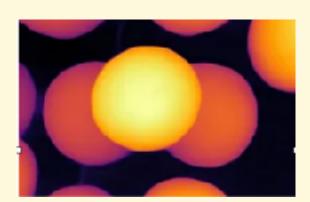
❓ Are there cookies stacked on other cookies?

🤖 GPT-4o

No ✗

📖✏️ SketchPad + GPT-4o

✏️ Use `segmentation & marking`

 Cookies 2 and 5 seem to overlap. Need to analyze their depth

✏️ Use `depth estimation`

 Warmer colors indicate closer proximity, suggesting they are stacked on cooler-colored ones. ✓

(d)