
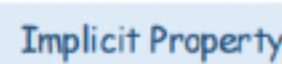
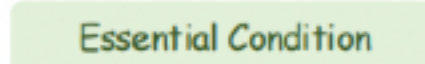




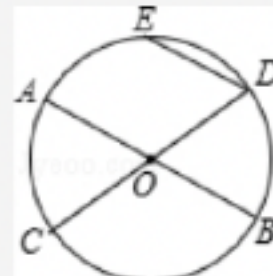
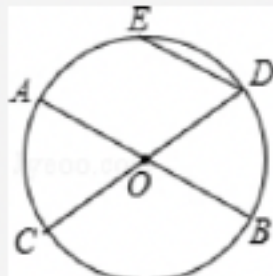

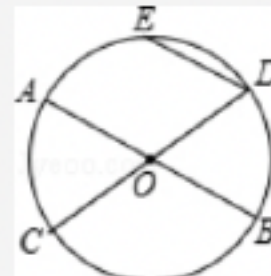
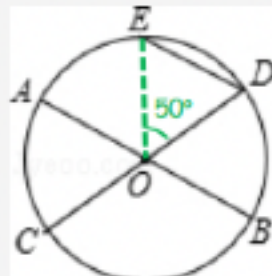
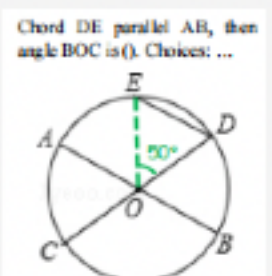


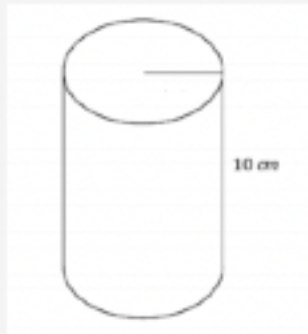


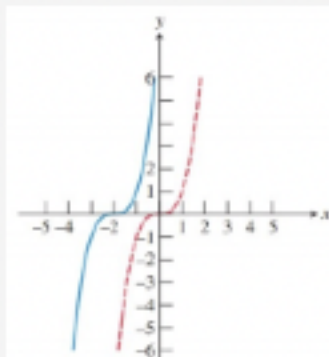
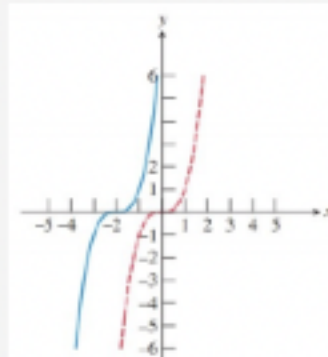
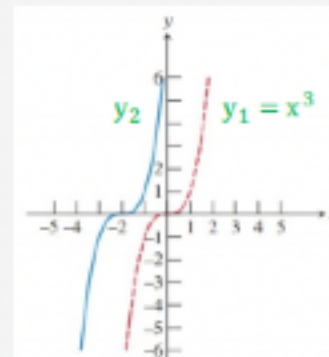


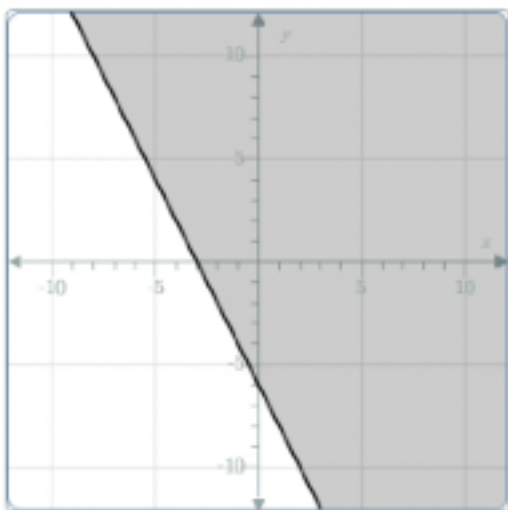
Mathverse

Contribution 1 — The Benchmark

	 Descriptive Information	 Implicit Property	 Essential Condition			
	 Text Dominant	Text Lite	Text Only	Vision Intensive	Vision Dominant	Vision Only
 Text Input	AB and CD are two diameters of circle O, chord DE parallel AB, arc DE is the arc of 50°, then angle BOC is (). Choices: ...	Chord DE parallel AB, arc DE is the arc of 50°, then angle BOC is (). Choices: ...	AB and CD are two diameters of circle O, chord DE parallel AB, arc DE is the arc of 50°, then angle BOC is (). Choices: ...	Arc DE is the arc of 50°, then angle BOC is (). Choices: ...	Chord DE parallel AB, then angle BOC is (). Choices: ...	
 Vision Input						
	 Text Dominant	Text Lite	Vision Dominant	 Text Dominant	Text Lite	Vision Dominant
Find the surface area of the cylinder shown. The height is 10 cm and the radius is 6 cm. Give your answer to two decimal places.	Find the surface area of the cylinder shown. and the radius is 6 cm. Give your answer to two decimal places.	Find the surface area of the cylinder shown. Give your answer to two decimal places.		The graph shows $y_1 = x^3$ passing (0,0) and a vertical or horizontal translation y_2 passing (-2,0). Write an equation for y_2 as shown.	The graph shows $y_1 = x^3$ and a vertical or horizontal translation y_2 . Write an equation for y_2 as shown.	The graph shows y_1 and a vertical or horizontal translation y_2 . Write an equation for y_2 as shown.
						

Mathverse

Contribution 2 — Chain of Thought Evaluation strategy



Question:

The x-intercept of the line is -3 and the y-intercept is -6. State the inequality that describes the region drawn in the plane.

Answer: $y \geq -2x - 6$.

Subject: 🚩 Expression

Version: Text Dominant

Model Output

The line passes through the points (-3, 0) and (0, -6). We can use these points to find the equation of the line. Let's use the slope-intercept form of a linear equation: $y = mx + b$, where m is the slope and b is the y-intercept. First, we'll find the slope (m) ...

Key-step Extraction

1. Use the slope-intercept form of a linear equation: $y = mx + b$.
2. Find the slope (m) using the formula: $m = (y_2 - y_1) / (x_2 - x_1)$. Using the points (-3, 0) and (0, -6): $m = (-6 - 0) / (0 - (-3))$, $m = -2$.
3. Find the y-intercept (b) using one of the points and the slope-intercept form of the equation: $0 = -2 * (-3) + b$, $b = -6$.
4. Since the line is solid, the inequality is either $y \leq -2x - 6$ or $y \geq -2x - 6$.
5. The region below the line is shaded, which means the values of y should be less than or equal to $-2x - 6$.
6. The inequality describing the region drawn in the plane is: $y \leq -2x - 6$.

Multi-step Scoring

- | | |
|---|-------|
| 1. The model correctly states that the slope-intercept form of a linear equation is $y = mx + b$. | ✓ 1/1 |
| 2. The model correctly calculates the slope (m) using the given points (-3, 0) and (0, -6). | ✓ 1/1 |
| 3. The model correctly finds the y-intercept (b) using one of the points and the slope-intercept form of the equation. | ✓ 1/1 |
| 4. The equation of the line is correctly stated as $y = -2x - 6$. | ✓ 1/1 |
| 5. The model incorrectly states that the region below the line is shaded. However, based on the diagram and the ground truth answer, the region above the line is shaded. | ✗ 0/1 |
| 6. The final inequality provided by the model is $y \leq -2x - 6$, which does not match the ground truth answer of $y \geq -2x - 6$. | ✗ 0/1 |

Multi-step Score: $(1 + 1 + 1 + 1 + 0 + 0) / 6 = 2/3 \approx 0.67$

Final CoT Evaluation Score: $0.67 \times 0.7 + 0 \times 0.3 = 0.47$