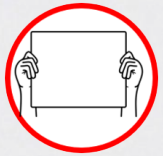
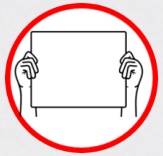


TRUE FALSE

The equation x = 5 represents a vertical line on the Cartesian plane.

The equation x = 5 represents a vertical line on the Cartesian plane.

True. Equations of the form x = constant are vertical lines parallel to the y-axis. Here, all points have x-coordinate 5, forming a vertical line.

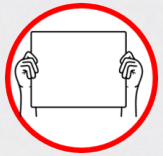


TRUE FALSE

A horizontal line has an undefined slope.

A horizontal line has an undefined slope.

False. Horizontal lines have a slope of 0 because there's no vertical change between any two points. Undefined slope occurs only in vertical lines.

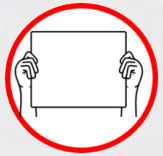


TRUE FALSE

The graph of y = -3 is parallel to the x-axis.

The graph of y = -3 is parallel to the x-axis.

True. Any equation of the form y = constant produces a horizontal line parallel to the x-axis. Here, all points have y-coordinate -3.

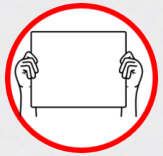


TRUE FALSE

Vertical lines can be expressed using the slope-intercept form $y = mx + b$.

Vertical lines can be expressed using the slope-intercept form y = mx + b.

False. Vertical lines (x = constant) have undefined slope, so they cannot be written in slope-intercept form, which requires a defined slope m.

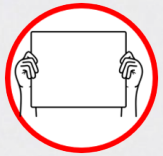


TRUE FALSE

The line passing through (2, 4) and (2, -1) is vertical.

The line passing through (2, 4) and (2, -1) is vertical.

True. Both points share the same x-coordinate (x=2), so the line connecting them is vertical. The slope would be undefined due to division by zero in the slope formula.

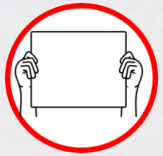


TRUE FALSE

A line with equation $4y - 8 = 0$ is horizontal.

A line with equation 4y - 8 = 0 is horizontal.

True. Simplifying to y = 2 shows it's a horizontal line where y is constant. The x-coordinate can vary freely.



TRUE FALSE

The graph of x = 0 is the same as the y-axis.

The graph of x = 0 is the same as the y-axis.

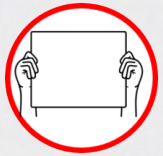
True. The equation x = 0 represents all points where the x-coordinate is 0, which is precisely the y-axis in the Cartesian plane.

TRUE FALSE

If two lines are both vertical, they must be parallel.

If two lines are both vertical, they must be parallel.

True. All vertical lines are parallel since they're perpendicular to the x-axis and never intersect, regardless of their x-intercept.



TRUE FALSE

The equation $y = 2x + 3$ represents a horizontal line.

The equation y = 2x + 3 represents a horizontal line.

False. This is in slope-intercept form with slope 2, indicating a diagonal line. Horizontal lines must have the form y = constant with no x-term.

TRUE FALSE

A vertical line intersects the x-axis at exactly one point.

A vertical line intersects the x-axis at exactly one point.

True. A vertical line x = h intersects the x-axis at (h, 0), since that's where y=0. It cannot intersect at multiple points.

TRUE FALSE

The line described by 3x - 6 = 0 is vertical.

The line described by 3x - 6 = 0 is vertical.

True. Simplifying to x = 2 confirms it's a vertical line. No y-variable appears in the equation, indicating all y-values are possible at x=2.

TRUE FALSE

Horizontal lines have no x-intercept.

Horizontal lines have no x-intercept.

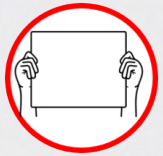
False. Horizontal lines $y = k$ have an x-intercept if $k=0$ (the x-axis itself). If $k \neq 0$, they're parallel to the x-axis and never intersect it.

TRUE FALSE

Two distinct horizontal lines can intersect at a point.

Two distinct horizontal lines can intersect at a point.

False. Horizontal lines with different y-values (e.g., y=1 and y=2) are parallel and never intersect. Only lines with the same equation would 'intersect' everywhere, but they aren't distinct.

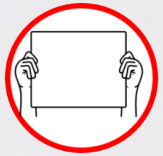


TRUE FALSE

The slope between any two points on a vertical line is zero.

The slope between any two points on a vertical line is zero.

False. Slope is undefined for vertical lines because the change in x is zero, making the slope formula $\Delta y/\Delta x$ involve division by zero.



TRUE FALSE

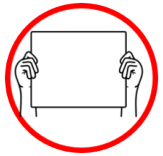
The equation $5y = 10$ represents a horizontal line.

The equation 5y = 10 represents a horizontal line.

True. Simplifying to y=2 shows it's horizontal. The absence of an x-term indicates y is constant for all x.

TRUE FALSE

A vertical line can be a function.



A vertical line can be a function.

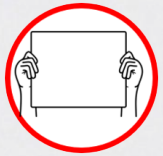
False. Vertical lines fail the vertical line test because a single x-value corresponds to multiple y-values, violating the definition of a function.

TRUE FALSE

The graph of $y = \pi$ is a horizontal line.

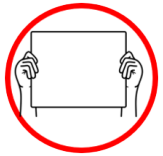
The graph of $y = \pi$ is a horizontal line.

True. Regardless of the constant value (even irrational like π), $y = \text{constant}$ always represents a horizontal line parallel to the x-axis.



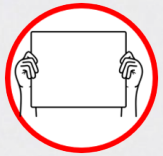
TRUE FALSE

The line x = y is vertical.



The line x = y is vertical.

False. x=y describes a diagonal line with slope 1 passing through the origin. Vertical lines require equations like x = constant with no y-dependence.



TRUE FALSE

Horizontal lines are perpendicular to vertical lines.

Horizontal lines are perpendicular to vertical lines.

True. Horizontal lines (slope 0) and vertical lines (undefined slope) intersect at right angles, satisfying the perpendicularity condition.

TRUE FALSE

The equation $0 \cdot x + y = 7$ represents a vertical line.

The equation $0 \cdot x + y = 7$ represents a vertical line.

False. Simplifying gives $y=7$, which is horizontal. The coefficient of x being zero eliminates x's influence, making y constant.