

Questions

1. Write an equation in standard form for the line that is parallel to $5x - 7y = 35$ that passes through the point $(6, 1)$, and then sketch the situation.
2. Write an equation in standard form for the line that is perpendicular to $3x - y = 9$ that passes through the origin, and then sketch the situation.
3. Show that if $y = mx + b_1$ and $y = mx + b_2$ are equations of lines with equal slopes, but $b_1 \neq b_2$, then they have no point in common.

Hint Assume they have a point in common (a, b) and show that this assumption leads to a contradiction.

4. Prove the following statement using algebraic calculations, using a graph only as a guide.

The points $(-5, -1)$, $(-3, -4)$, $(3, 0)$ and $(1, 3)$ are the vertices of a rectangle.

Hint: What must be true of the diagonals of a rectangle?