

F-LE Do two points always determine a linear function?

Task

- a. Suppose $P_1 = (0, 5)$ and $P_2 = (3, -3)$. Sketch P_1 and P_2 . For which real numbers m and b does the graph of a linear function described by the equation $f(x) = mx + b$ contain P_1 ? Explain. Do any of these graphs also contain P_2 ? Explain.
- b. Suppose $P_1 = (0, 5)$ and $P_2 = (0, 7)$. Sketch P_1 and P_2 . Are there real numbers m and b for which the graph of a linear function described by the equation $f(x) = mx + b$ contains P_1 and P_2 ? Explain.
- c. Now suppose $P_1 = (c, d)$ and $P_2 = (g, h)$ and c is not equal to g . Show that there is only one real number m and only one real number b for which the graph of $f(x) = mx + b$ contains the points P_1 and P_2 .



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