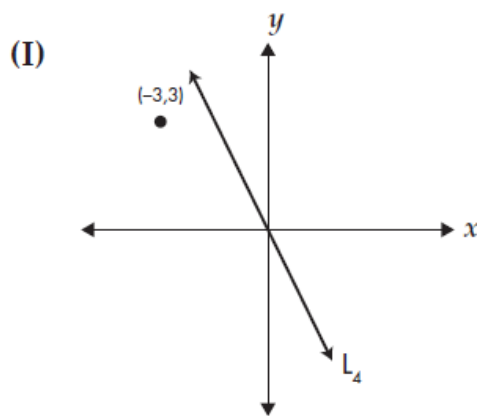
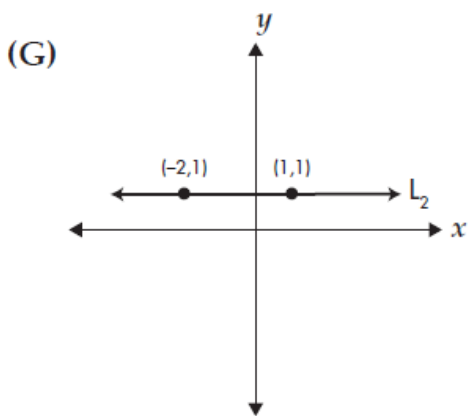
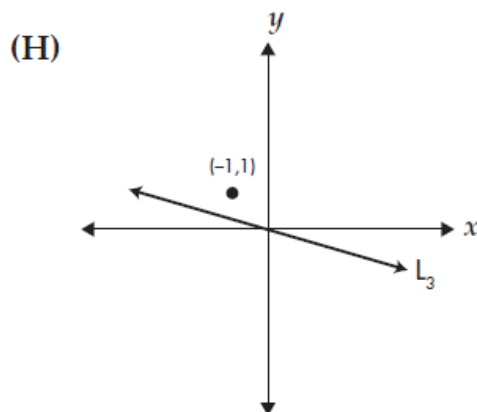
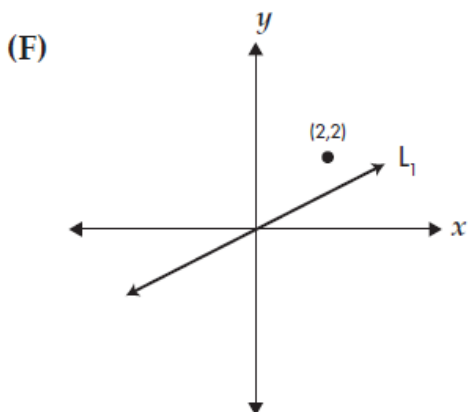


- 63** You are given the function $\{(-5, 8), (-3, 16), (-2, 7), (x, y)\}$, which contains four distinct elements. The highest value of the range is 16 and the lowest value of the domain is -5 . If x and y are both integers, what is the maximum value of $|x - y|$?

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- 64** Which of the following represents the graph of a line whose slope has an absolute value greater than 1?



- 65** Bobby is given the function $f(x) = 2x^2 - x - 13$ and calculates the value of $f(6)$. Diane is then tasked to substitute the value of $f(6)$ for x in the function $g(x) = x^2 - 100$. What numerical value does Diane get?

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Answers

- 63** The correct answer is 20. The largest possible y value is 16. The lowest possible x value is -4 . Note that x cannot be -5 because this would violate the basic rule of a function, which states that a single value of x cannot be assigned to two different y values. Then $16 - (-4) = 20$.
- 64** (I)
The line contains the point $(0, 0)$. For $x = -3$, let k represent the corresponding y value. Then the slope is $\frac{k-0}{-3-0} = -\frac{k}{3}$. Since this point lies above $(-3, 3)$, $k > 3$. Consequently, $-\frac{k}{3} < -1$, which implies that $\left|-\frac{k}{3}\right| > 1$. For choice (F), the line passes below $(2, 2)$ and contains $(0, 0)$, so its slope is a positive number less than 1. For choice (G), the slope of the line is zero. For choice (H), the line contains $(0, 0)$. The line passes below $(-1, 1)$, so for $x = -1$, the corresponding y value is a positive number less than 1. Then, its slope is some negative number between -1 and zero (a possible value would be $-\frac{1}{2}$). Therefore the absolute value of the slope would be less than 1.
- 65** The correct answer is 2709. By substitution, $f(6) = 2(6)^2 - 6 - 13 = (2)(36) - 6 - 13 = 53$. Now, using the function $g(x) = x^2 - 100$, substitute 53 for x . Then $g(53) = (53)^2 - 100 = 2709$.