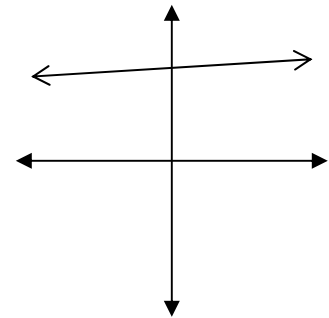
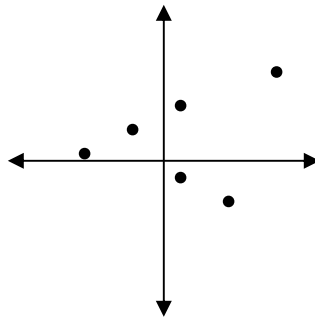
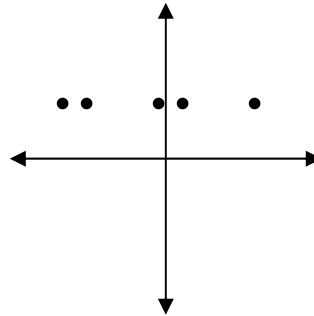
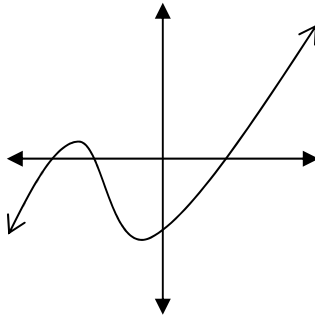


# To Fret or Not To Fret

NAME \_\_\_\_\_

1. Which of the four graphs below represent continuous curves, and which represent discrete curves? Explain how you decided.



2. You discovered a geometric sequence when measuring the frets on a stringed instrument. Which of the following functions relates to frets and the notes on a fretted instrument, and which relates to the continuous change in lengths of strings on a fretless instrument?

FUNCTION	RELATED TO FRETTED OR FRETLESS INSTRUMENTS?	IS IT CONTINUOUS OR DISCRETE? EXPLAIN.
$y = ar^n$ $n = 0, 1, 2, \dots, 12$		
$y = ar^x$ $0 \leq x \leq 12$		

3. For graphs of the form  $y = ar^x$  or  $y = ar^n$ , explain what the  $y$ -intercept represents on a stringed instrument.
  
4. Discuss what factors could prevent the lengths between frets from exactly forming a geometric sequence.
  
5. Which type of stringed instrument, fretted or fretless, gives a musician the most flexibility in playing accurate pitches, if the instrument itself is out of tune? Explain how you know.
  
6. In the equations  $y = ar^n$  and  $y = ar^x$ , which letters represent variables and which represent constants? Justify your choice in the context of a musical instrument you studied in this lesson.

Letter	Variable or Constant?	Explanation
$y$		
$a$		
$r$		
$x$ or $n$		