11.1 IB Math SL Algebra II Regents practice:

Dr. Huson

2 October 2017 Due: Friday 6 October

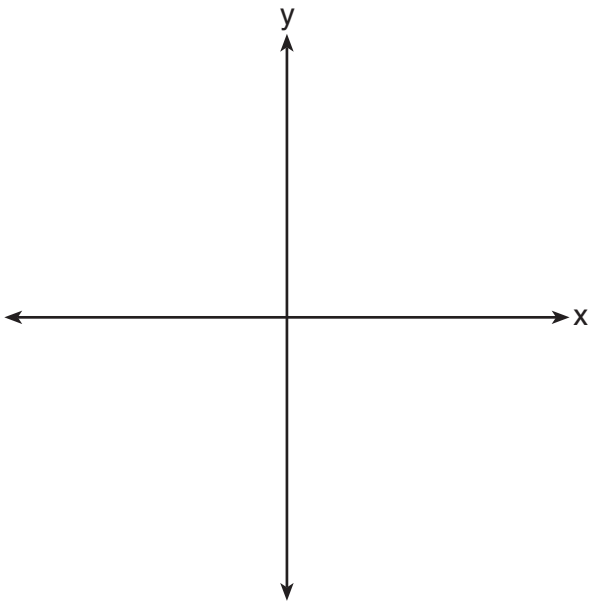
Exercises for new material: Quadratics vertex form

1. Define
2. Prove that
   (a) example **bold** letter section
   (b) second letter section

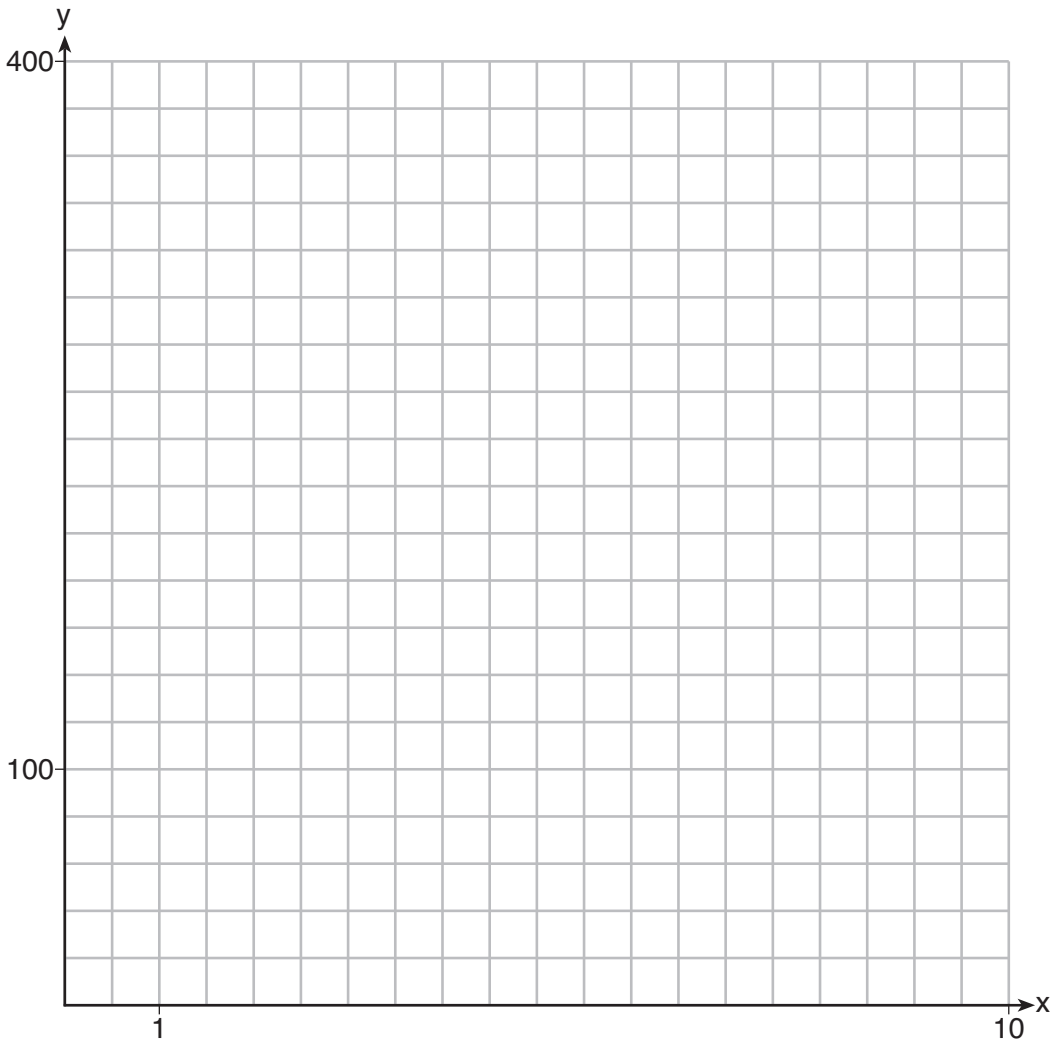
Practice previous material: Inverse functions

Graphing functions

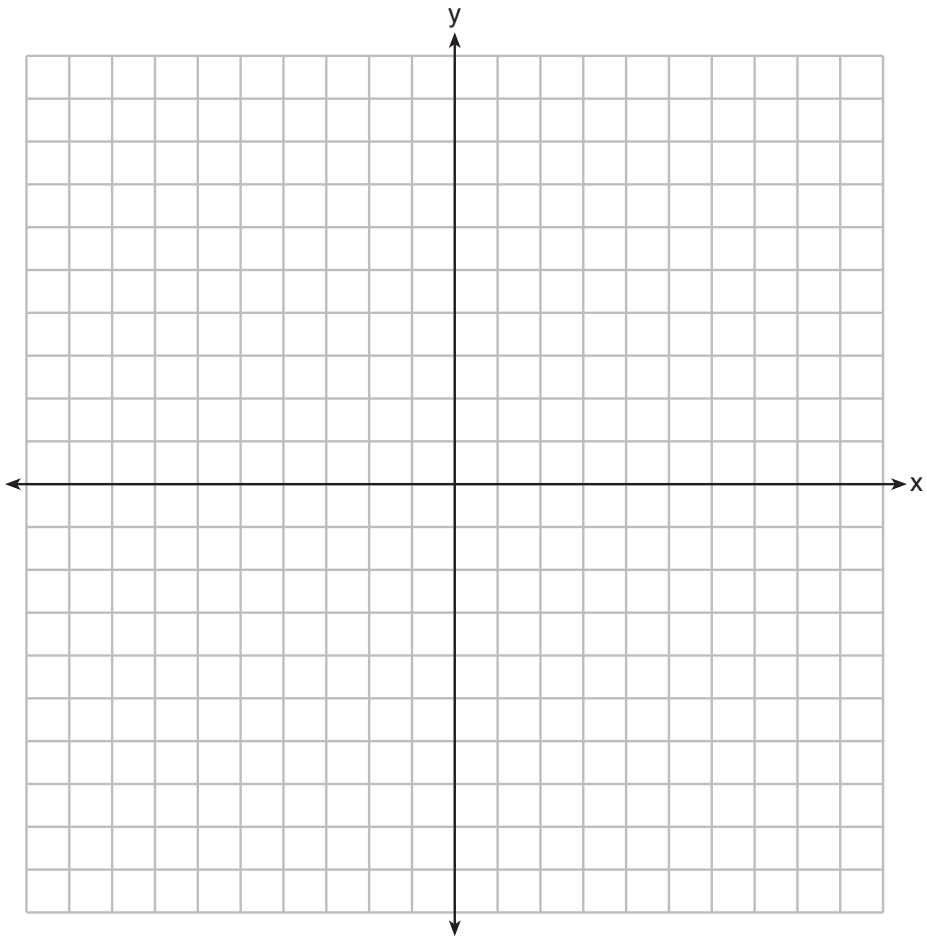
1. On the axes below, sketch a possible function $p(x) = (x - a)(x - b)(x + c)$, where a, b, and c are positive, $a > b$, and $p(x)$ has a positive y-intercept of d. Label all intercepts.



2. Graph $y = 400(.85)^{2x} - 6$ on the set of axes below.

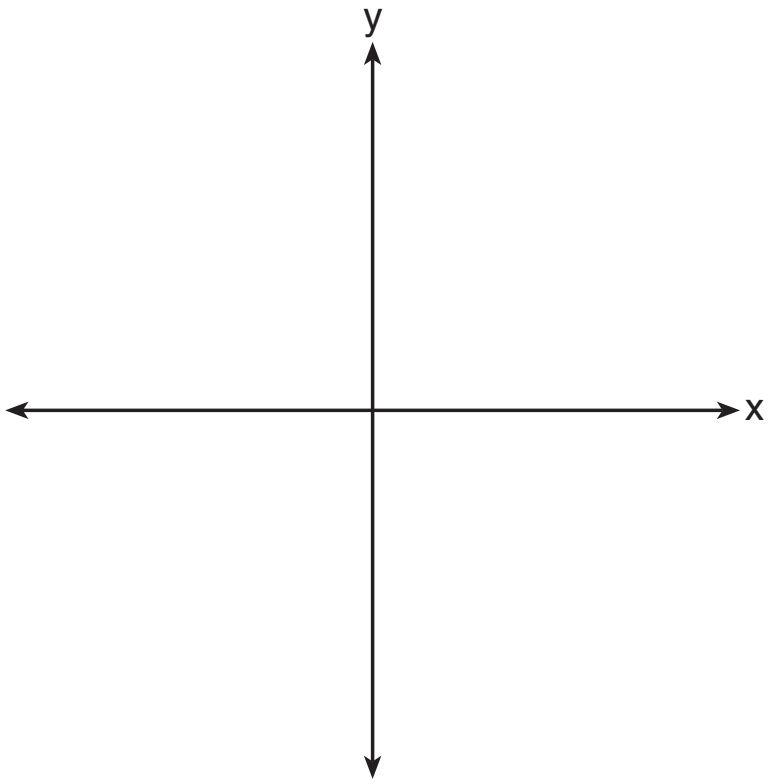


3. Graph $y = log_2(x+3) - 5$ on the set of axes below. Use an appropriate scale to include *both* intercepts.



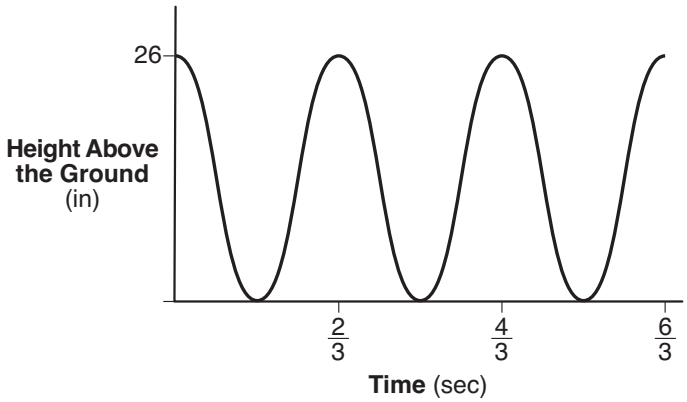
Describe the behavior of the given function as x approaches -3 and as x approaches positive infinity.

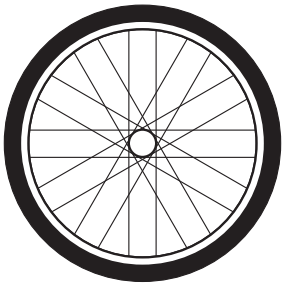
4. (a) On the axes below, sketch at least one cycle of a sine curve with an amplitude of 2, a mid line at $y = -3/2$, and a period of 2π.



(b) Explain any differences between a sketch of $y = 2sin\left(x - \frac{\pi}{3}\right) - \frac{3}{2}$ and the sketch from part *a*.

5. The graph below represents the height above the ground, h, in inches, of a point on a triathlete's bike wheel during a training ride in terms of time, t, in seconds.





Identify the period of the graph and describe what the period represents in this context.