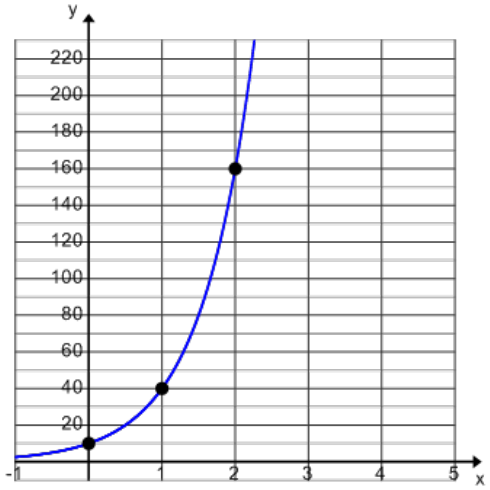
MCR3UI - Unit 5 Day 7

Review
Practice Questions

1. (a) Graph the function $y = 27\left(\frac{1}{3}\right)^x$.
   (b) Identify the
      (i) domain
      (ii) range
      (iii) x- and y- intercepts
      (iv) intervals of increase/decrease
      (v) equation of the asymptote

2. Determine the equation for the exponential graph shown.



3. (a) Sketch the function $y = 2^{x-3} + 4$
   (b) identify the
      (i) domain
      (ii) range
      (iii) equation of the asymptote

4. Describe the transformations that map the base function $y = 5^x$ onto each of the given functions and then graph each function using transformations.
   (a) $y = 2(5^x)$
   (b) $y = 5^{2x}$
   (c) $y = -5^{-x}$
   (d) $y = 5^{-5x-10}$

5. The height, h, in centimetres, of a bouncing ball after n bounces is given.

Number of Bounces, n	*Height, h (cm)*
0	*100*
1	*76*
2	*57*
3	*43*
4	*32*
5	*24*

(a) Calculate the first and second differences and describe the trend.

(b) Make a scatter plot of height versus number of bounces. Describe the shape of the curve.

(c) Write the equation of the curve of best fit. Justify your choice.

(d) Will the ball ever stop bouncing? Discuss this with respect to

(i) the mathematical model

(ii) the real situation

(e) Why might your answers in part (d) differ?