1. A sphere has radius r.
   a) Write a function for the sphere's surface area in terms of r.
   b) Write a function for the radius in terms of the volume, V.
   c) Determine $A(r(V))$.
   d) A mother wrapped a ball in wrapping paper and gave it to her son on his birthday. The volume of the ball was 0.75 m^3. Assuming that she used the minimum amount of wrapping paper possible to cover the ball, how much wrapping paper did she use?

2. Solve $x \sin x \geq x^2 - 1$. Use any strategy.

3. Let $f(x) = (2x + 3)^7$. Find at least two different pairs of functions, $g(x)$ and $h(x)$, such that $f(x) = (g \circ h)(x)$.

n	$N(n)$
0	400
2	520
4	752
6	1144
8	1744
10	2600
15	6175

4. In the table at the left, $N(n)$ is the number, in thousands, of Canadian home computers sold, where n is the number of years since 1990.
   a) Determine the equation that best models this relationship.
   b) How many home computers were sold in June 1993?

5. The graph of the function $f(x)$ is a line passing through the point $(2, -3)$ with a slope of 6. The graph of the function $g(x)$ is the graph of the function $h(x) = x^2$ vertically stretched by a factor of 5, horizontally translated 8 units to the left, and vertically translated 1 unit down. Find $(f \times g)(x)$.

6. The height of a species of dwarf evergreen tree, in centimetres, as a function of time, in months, can be modelled by the logistic function $h(t) = \dfrac{275}{1 + 26(0.85)^t}$.
   a) If this function is graphed, are there any asymptotes? If so, name each asymptote and describe what it means.
   b) Determine when this tree will reach a height of 150 cm.

7. The cost, in dollars, to produce a product can be modelled by the function $C(x) = 5x + 18$, where x is the number of the product produced, in thousands. The revenue generated by producing and selling x units of this product can be modelled by the function $R(x) = 2x^2$. How much of the product must the company produce in order to break even?

8. Solve $\dfrac{\cot x}{x} = x^3 + 3$. Use any strategy. Round your answer(s) to the nearest tenth, if necessary.

9. Given $f(x) = \sin x$ and $g(x) = \cos x$, which of the following operations make it possible to combine the two functions into one function that is not sinusoidal: addition, subtraction, multiplication, or division?