2.21 Do Now Quiz: Solving quadratic equations using a calculator (A1-A.REI.4a)

1. For the pair of polynomials given, state as ordered pairs **all** the points of intersection of their graphs.
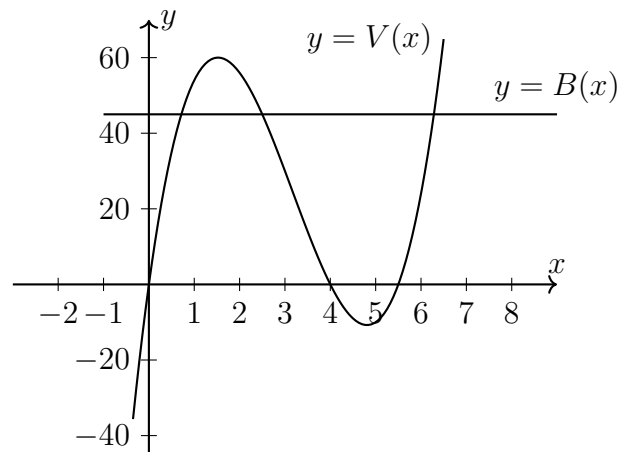
$g(x) = (x - 3)(x + 1)$
$h(x) = x + 1$

2. Arlenis is making an open-top box by cutting squares out of the corners of a piece of paper that is 8 inches wide and 11 inches long, and then folding up the sides. If the side lengths of her square cutouts are x inches, then the volume of the box is given by

$V(x) = x(8 - 2x)(11 - 2x)$

Arlenis graphs the volume of the box along with the function $B(x) = 45$.

   (a) What is a reasonable domain for $V(x)$?

   (b) Approximately which value of x will give her a box with the greatest volume?

   (c) For approximately which values of x is the volume of the box increasing?

   (d) What do the points of intersection of these two graphs represent?