## Algebra 2 Honors

Notes: 3-5, 3-6 Applications

Name
Date $\qquad$ Block

1. The design of a box specifies that its length is 4 inches greater than its width. The height is 1 inch less than the width. The volume of the box is 12 cubic inches. What is the width of the box?
2. A shipping crate must hold 15 cubic feet. The length should be 2 feet longer than the height, and the width should be 2 feet less than the height. What should the height of the crate be?
3. A silo is in the shape of a cylinder with a cone-shaped top. The cylinder is 20 feet tall. The height of the cone is 1.5 times the radius. The volume of the silo is $828 \pi$ cubic feet. Find the radius of the silo.
4. A grain silo is in the shape of a cylinder with a hemisphere top. The cylinder is 20 feet tall. The volume of the silo is $2106 \pi$ cubic feet. Find the radius of the silo.

In 5 - 8, write the simplest polynomial function with the given zero(s).
5. $2+i$
6. $2+i$ and 1
7. $2+i, \sqrt{3}$, and 1
8. $2 i, 1+\sqrt{2}$, and $\sqrt{3}$

