Example from:
Module 2: Linear & Quadratic Functions
Unit 4- Geometry of Quadratic Functions

A person throws a rock upwards with an initial velocity. The height of the rock (in feet) with respect to his hand is given by the expression: $h(t) = 210t - \frac{32\ t^2}{2}$, where t is the flying time of the rock (in seconds). Find the following:

a. The maximum height the rock reaches.
b. The time it takes the rock to come back to the thrower's hand.

Example from:
Module 3: Polynomial & Rational Functions
Unit 2- Graphs of Polynomial Functions

For the problem below, find the degree 3 polynomial with integer coefficients that has the given roots and whose graph contains the given point.

Roots: $\{-1, 2+i, 2-i\}$ through the point: $(2,-3)$

Example from:
Module 5: Trigonometric Functions
Unit 5- Proving Trigonometric Identities

Prove the following identity.

$$\frac{\csc(x)-\sec(x)}{\tan(x)-1}=-\csc(x)$$

Example from:
Module 7: Analytic Geometry
Unit 4- Hyperbolas

Rewrite the equation of the hyperbola given below, in standard form. State the following: (a) the parameters a and b; (b) whether the hyperbola's transverse axis is horizontal or vertical; (c) the coordinates of the foci; (d) the coordinates of the vertices; and (e) the expression of the asymptotes.

$4x^2 - 9y^2 - 144 = 0$