

<p>1. The height of an object, $h(t)$, is determined by the formula $h(t) = -16t^2 + 256t$, where t is time, in seconds. Will the object reach a maximum or a minimum? Determine what the maximum or minimum height will be.</p>	
<p>2. The height, h, in feet, a ball will reach when thrown in the air is a function of time, t, in seconds, given by the equation $h(t) = -16t^2 + 30t + 6$. Find, to the <i>nearest tenth</i>, the maximum height, in feet, the ball will reach.</p>	
<p>3. Write a quadratic equation with integral coefficients that has the root $\frac{5 - 4i}{6}$.</p>	<p>4. Find the inverse of the function $2x + 3y = 6$.</p>
<p>5. A software company agrees to write a program for \$5000 plus \$75 for each copy. Express the total cost, $C(x)$, as a function of the number of copies, x.</p>	<p>6. What is the axis of symmetry of the parabola represented by the equation $y = 2x^2 + 16x - 11$?</p>
<p>7. Which relation is <i>not</i> a function? (1) $y = 2x + 4$ (3) $x = 3y - 2$ (2) $y = x^2 - 4x + 3$ (4) $x = y^2 + 2x - 3$</p>	<p>9. Montana and her brother Edward were racing remote control cars. The speed of Montana's car is represented by the equation $s(t) = 25t^2 - 32$, where t represents the time in seconds. The speed of Edward's car is represented by the equation $s(t) = 7t^2 + 15t$. How many seconds, to the <i>nearest tenth</i> of a second, does it take for the speed of two cars to be equal? [Only an algebraic solution will be accepted.]</p>
<p>8. If $f(x) = 2x + 1$ and $g(x) = 6$, find $(f \circ g)(x)$.</p>	

10. If $r(x) = 5 - 2x^2$ and $t(x) = x - 3$, find $(r \circ t)(x)$ in simplest form.

11. An archer shoots an arrow into the air such that its height at any time, t , is given by the function $h(t) = -16x^2 + kt + 3$. If the maximum height of the arrow occurs at time $t = 4$, what is the value of k ?

12. If $r(x) = 5x - x^2$ and $t(x) = 3 - x$, find $(r \circ t)(x)$ and find $(r \circ t)(x)$ in *simplest form*.

13. A rectangular prism has a length of $\frac{2x^2 + 2x - 24}{4x^2 + x}$, a width of $\frac{x^2 + x - 6}{x + 4}$, and a height of $\frac{8x^2 + 2x}{x^2 - 9}$. For all values of x for which it is defined, express, in terms of x , the volume of the prism in simplest form.