15.2 Applications of Quadratic Functions Name_____

Quadratic Graphs of the form $f(x)=ax^2+bx+c$ or $y=a\left(x-h\right)^2+k$

If $a>0$, graph has a minimum of: If $a<0$, graph has a maximum of:

1. Find the minimum or maximum value of the quadratic function. $f\left(x\right)=2x^2-16x+23$

2. Find the minimum or maximum value of the quadratic function. $f(x)=x^2-5x$

3. Find the minimum or maximum value of the quadratic function. $f(x)=-3x^2+6x+2$

4. An event in the Summer Olympics is 10-meter springboard diving. In this event, the height *s*, in meters, of a diver above the water *t* seconds after jumping is given by $s(t) = -4.9t^2 + 7.7t + 10$.What is the maximum height that the diver will be above the water? Round to the nearest tenth.

5. Find two numbers whose difference is 16 and whose product is a minimum.

6. The manager of a 100-unit apartment complex is trying to decide what to charge for rent. Experience has shown that at a monthly rate of $1400, every unit will be occupied. For each $100 increase in the monthly rate, one additional unit will remain vacant. Find the number of units the manager should rent to maximize revenue.

7. A large lot in a park is going to be split into two softball fields, and each field will be enclosed with a fence. The parks and recreation department has 2016 ft of fencing to enclose the fields. What dimensions will enclose the greatest area?