# Algebra II Test - Chapter 2 REVIEW 

Name: $\qquad$
Multiple Choice: Place your answer on the line provided.
$\qquad$ 1. Find the vertex of the equation: $\mathrm{f}(x)=-3 x^{2}+9 x+9$
2. List the transformations of the function: $(x)=\left(-\frac{1}{3} x+3\right)^{2}+5$
3. Find the sum or difference $(4+7 i)-(2-8 i)$ then find $(5-8 i)+(3+i)$
4. Use the discriminant to determine how many roots the following equation has: $x^{2}-8 x+17=0$
5. Use the Quadratic Formula to find the zeros/solutions of the equation in \#4.
6. Solve by completing the square $x^{2}-6 x+15=0$
7. Write the equation $x^{2}+4 x+15=0$ in the form $(x-p)^{2}=q$
8. Multiply $(7+i)^{2}$ and $(6+i)(7-3 i)$
9. Divide $\frac{4+5 i}{3-i}$
10. Use square roots to solve the equation $x^{2}+84=0$ and $3 x^{2}+48=0$
11. Write an equation of a parabola with $x$-intercepts at $(-6,0)$ and $(2,0)$ and which passes through the point (1, -2)
12. Identify the interval(s) on which the equation $y=x^{2}+x-6$ is positive:
13. Alan is standing on a hill 120 feet high. He throws a baseball upward with an initial velocity of 62 feet per second. The height of the ball $h(t)$ in terms of the time $t$ since the ball was thrown is $h(t)=-16 t^{2}+62 t+$ 120.
a. Find the time that the ball reaches its max height.
b. Find the max height
c. Find the time when the ball hits the ground (if it does not factor, then use Quadratic Formula)
14. Factor the following:
a. $x^{2}-5 x-14=0$
b. $30 x^{2}-8 x-6$
15. Use the key features to graph the function: $x^{2}+5 x+6$

