$\qquad$ Period: $\qquad$ Due Date: February 19, 2019 (MATH 4/5 H)

## Quadratics Homework \#5

Directions: Convert the functions below into the given form and graph the quadratic functions.

1. $f(x)=2 x^{2}+36 x-8$
2. $f(x)=-3(x-4)(x+2)$



Directions: Graph each transformation by using the reference points provided.

1. $g(x)=-\frac{1}{2} f(x-1)+1$
2. $g(x)=2 f(-x+1)$



Directions: Write a quadratic function that represents each problem situation.

1. Ella's dog, Doug, is performing in a special trick show. Doug can fling a ball off his nose into a bucket 20 feet away from him. Ella places the ball on Doug's nose which is 4 feet off the ground. He flings the ball through the air into the bucket on a 4 -foot tall platform. Halfway to the bucket, the ball is 10 feet in the air.
2. A spectator in the crowd throws a treat to one of the dogs in a competition. The spectator throws the treat from the bleachers 19 feet off the ground. The treat amazingly flies 30 feet and barely crosses over a hoop that is 7.5 feet off the ground. The dog catches it 6 feet further than the hoop about 1 foot above the ground.
3. John's dog, Ginger, competes in water jumping. She jumps from the water, catches a toy duck at a horizontal distance of 10 feet from the jump and a height of 2 feet above the water, and lands back in the water at a horizontal distance of 15 feet from the jump.

Directions: Simplify.

1. $9+3 i(7-2 i)$
2. $(2 x i-9)(3 x+5 i)$
3. $-(4 i-1+3 i)+(6 i-10+17)$
4. $\frac{-1+5 i}{1-4 i}$

Directions: Use the discriminant to determine how many and what type of zeros these have.

1. $f(x)=x^{2}-4 x+7$
2. $f(x)=-\frac{1}{4} x^{2}+3 x-8$

Directions: Find the zeros of the functions.

1. $f(x)=9 x^{2}-12 x+4$
2. $f(x)=x^{2}+2 x+10$
