Vertex form: $f(x)=(x-h)^2+k$

   Remember: (h, k) is your vertex.

Determine whether the parabola opens up or down and vertex of each quadratic function.

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

3. $f(x)=-2(x-1)^2-8$ 4. $f(x)=\dfrac{1}{2}(x-2)^2+6$

5. $f(x)=-(x+9)^2-1$ 6. $f(x)=(x-5)^2$

Write an equation for a quadratic function in vertex form with each set of given characteristics.

7. The vertex is (-1, 4) and the parabola opens down.

8. The vertex is (3, -2) and the parabola opens up.

9. The vertex is (0, 8) and the parabola opens up.

10. The vertex is (8, 0) and the parabola opens down.

Identify the form of each quadratic function as either <u>standard form</u>, <u>factored form</u>, or <u>vertex form</u>. Then state all you know about the quadratic function's key characteristics, based only on the given equation of the function.

11. $f(x)=5(x-3)^2+4$ 12. $f(x)=-(x-8)(x-3)$ 13. $f(x)=x^2+4x-12$