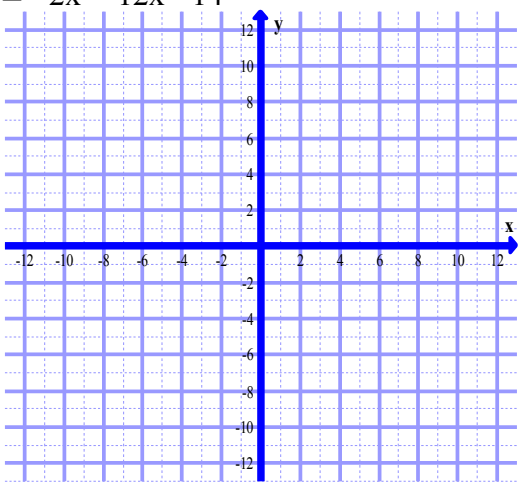
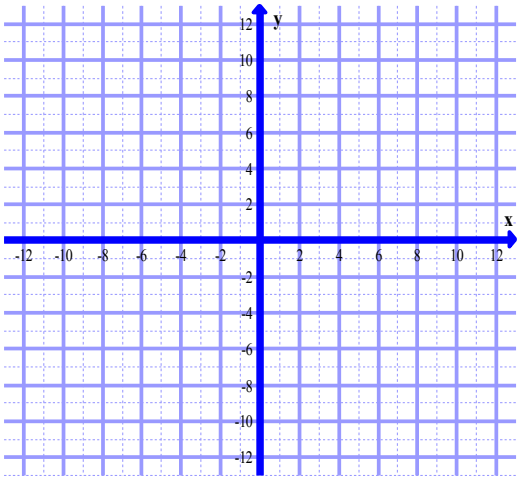
4.3 Practice Problems

1. Graph the quadratic function using transformations. $f(x)=-2x^2-12x-14$



2. a. Graph $f(x)=3x^2-12x+7$ by determining whether the graph opens up or down and by finding its vertex, axis of symmetry, *y*-intercept, and *x*-intercepts, if any.

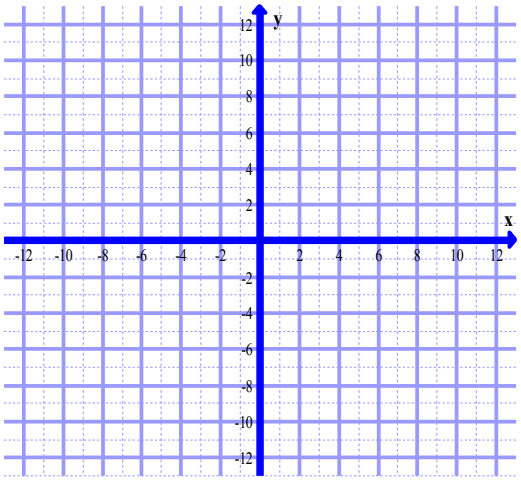


b. Determine the domain and range of *f*.

c. Determine where *f* is increasing and where it is decreasing.

d. Determine whether the graph has a maximum or minimum value. Then find the maximum or minimum value.

3. a. Graph $f(x)=-4x^2-8x-9$ by determining whether the graph opens up or down and by finding its vertex, axis of symmetry, *y*-intercept, and *x*-intercepts, if any.



b. Determine the domain and range of *f*.

c. Determine where *f* is increasing and where it is decreasing.

d. Determine whether the graph has a maximum or minimum value. Then find the maximum or minimum value.

4. The monthly revenue *R* achieved by selling x baseball gloves is figured to be $R(x)=80x-0.5x^2$. The monthly cost *C* of selling x baseball gloves is $C(x)=20x+1000$.

a. How many baseball gloves must the company sell to maximize revenue? What is the maximum revenue? (Round to the nearest integer as needed)

b. Profit is given as $P(x)=R(x)-C(x)$. What is the profit function?

c. How many baseball gloves must the company sell to maximize profit? What is the maximum profit?