1. Describe the symmetry of an EVEN function.

The graph must be symmetric with respect to the y-axis. (i.e. If we reflected the right half of the graph over the y-axis, it would perfectly match up with the left half of the graph. \( f(-x) = f(x) \))

2. Describe the symmetry of an ODD function.

The graph must be symmetric with respect to the origin. (i.e. If we first fold the graph in half along the y-axis and then fold the graph in half along the x-axis, it would perfectly match the graph in the 3rd quadrant. Alternately, you could also rotate the graph 180° about the origin and there would be no change. \( f(-x) = -f(x) \))

3. Describe each graph as EVEN, ODD, or NEITHER
4. Describe the definition in function notation of every EVEN function.

\[ f(-x) = f(x) \]

5. Describe a definition in function notation of every ODD function.

\[ f(-x) = -f(x) \]

6. Describe each function below as EVEN, ODD, or NEITHER

a. \( f(x) = x^2 + 5 \)

\[ f(-x) = (-x)^2 + 5 = f(x) \]

b. \( g(x) = x^3 - 2x \)

\[ g(-x) = (-x)^3 - 2(-x) = -x^3 + 2x \]

\[ g(-x) = - (x^3 - 2x) = - g(x) \]

7. If \( f(2) = 3 \) and \( f(x) \) is an EVEN function, what other point must be on the graph of \( f(x) \)?

\( f(2) = 3 \)

\[ \begin{align*}
  f(-x) &= f(x) \\
  f(-2) &= f(2) = 3 \\
  (-2, 3) &\quad \text{and} \quad (2, 3)
\end{align*} \]

8. If \( g(2) = 3 \) and \( g(x) \) is an ODD function, what other point must be on the graph of \( g(x) \)?

\( g(-x) = -g(x) \)

\[ \begin{align*}
  g(-2) &= -g(2) = -3 \\
  (-2, -3) &\quad \text{and} \quad (2, 3)
\end{align*} \]

9. If the partially graphed function below is EVEN then finish what the rest of the graph should look like.

\[ f(-x) = f(x) \]

10. If the partially graphed function below is ODD then finish what the rest of the graph should look like.

\[ f(-x) = -f(x) \]