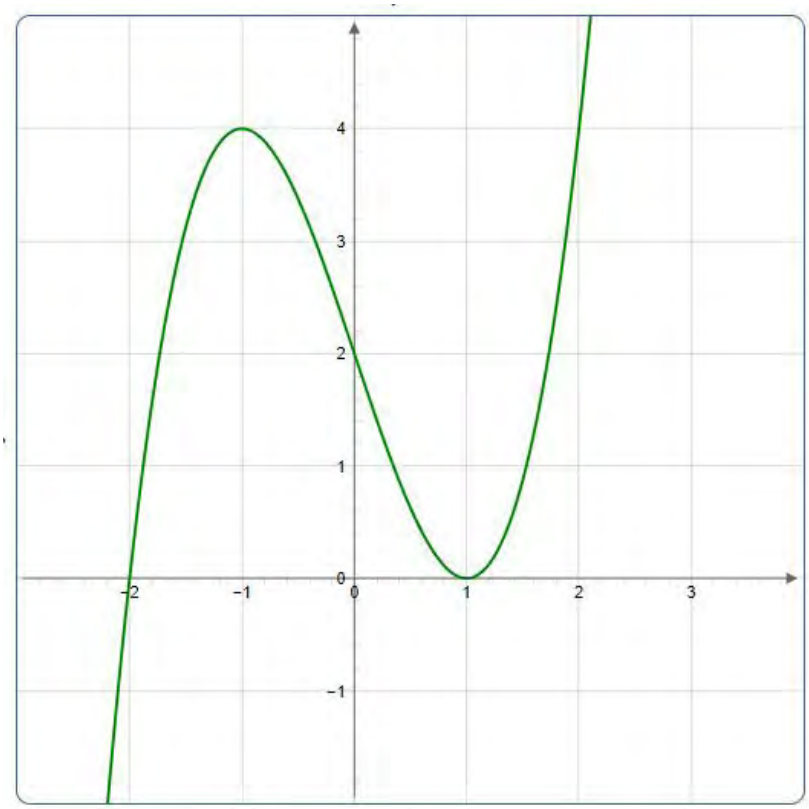
Zeros of Order *n* on *a* Graph Suggested Answers

Question 1: Suggested Answer

Function: $f(x)=(x+2)(x-1)^2$

a. Graph the function



b. Identify the zeros and their order

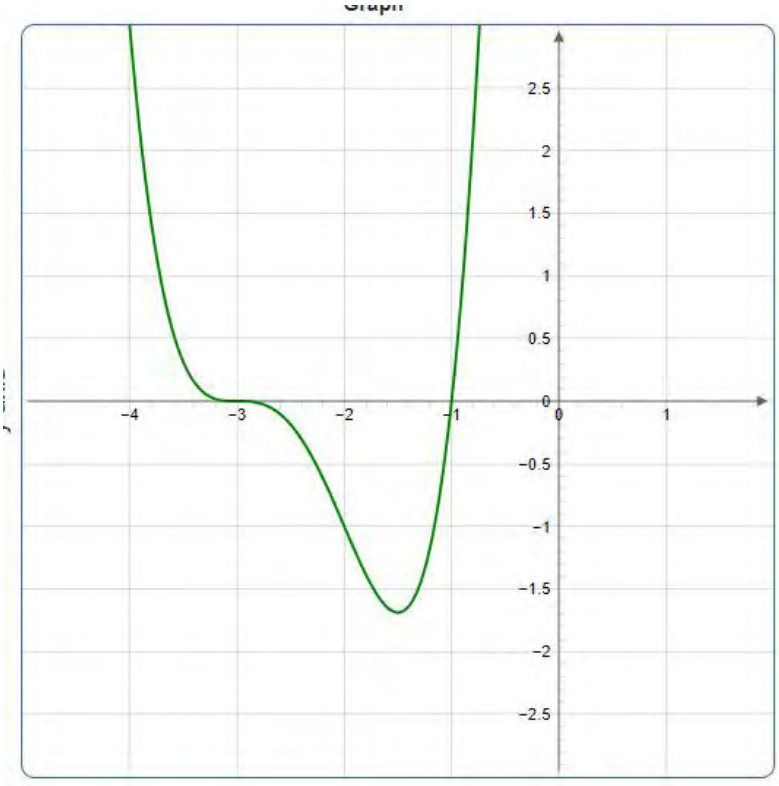
Single zero at $x=-2$ and a double zero at $x=1$

c. What happens to the graph at each zero?
At the single zero, $x=-2$, the graph crosses the x-axis.
At the double zero, $x=1$, the graph touches the x-axis, but does not cross it.

Question 2: Suggested Answer

Function: $f(x) = (x+1)(x+3)^3$

a. Graph the function



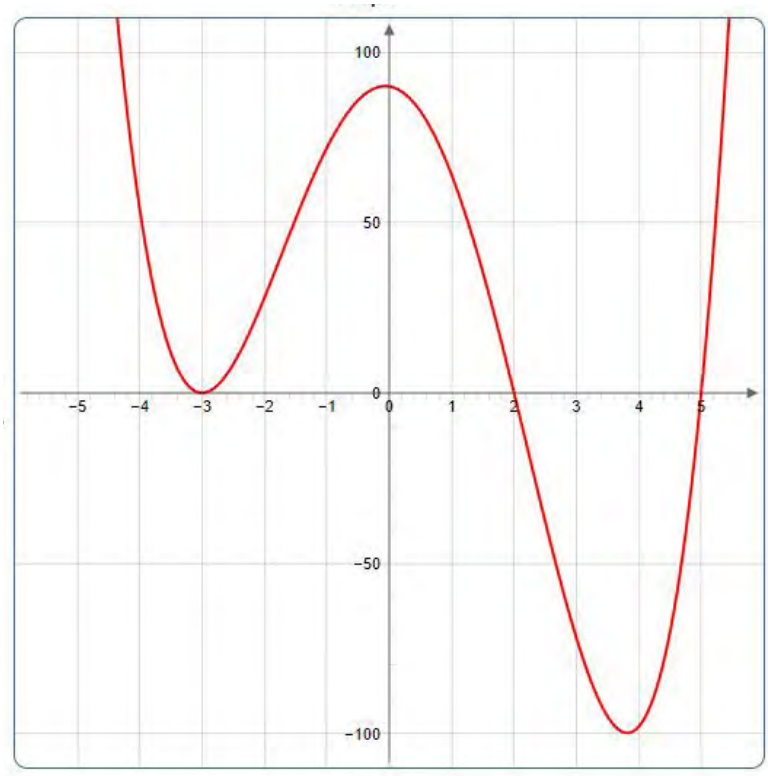
b. Identify the zeros and their order
Single zero at $x=-1$ and a triple zero at $x=-3$

c. What happens to the graph at each zero?
At the single zero, $x=-1$, the graph crosses the x-axis. At the triple zero, $x=-3$, the graph crosses the x-axis

Question 3: Suggested Answer

Function: $f(x)=(x-5)(x-2)(x+3)^2$

a. Graph the function



b. Identify the zeros and their order

Single zero at $x=5$, a single zero at $x=2$, and a double zero at $x=-3$

c. What happens to the graph at each zero?

At the single zero, $x=5$, the graph crosses the x-axis

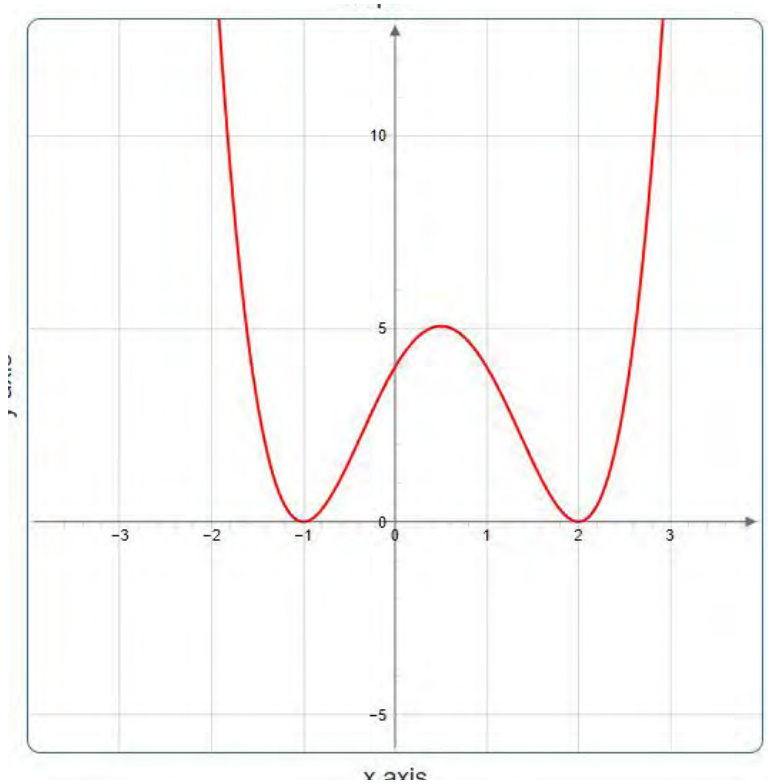
At the single zero, $x=2$, the graph crosses the x-axis

At the double zero, $x=-3$, the graph touches the x-axis, but does not cross it.

Question 4: Suggested Answer

Function: $f(x)=(x-2)^2(x+1)^2$

a. Graph the function



b. Identify the zeros and their order
Double zero at $x=2$ a and a double zero at $x=-1$

c. What happens to the graph at each zero?
At the double zero, $x=2$, the graph touches the x-axis, but does not cross it.
At the double zero, $x=-1$, the graph touches the x-axis, but does not cross it.