Practice Problem 1

A polynomial function h is given by $h(x) = ax^3 + bx^2 + cx + d$ where $a \neq 0$ and $a, b, c, and\ d$ are constants. Which of the following is true about h?

(a) There is not enough information to determine if h has a global maximum or a global minimum.

(b) h has both a global minimum and a global maximum.

(c) h has a global maximum or a global minimum, but not both.

(d) h has neither a global maximum or a global minimum.

Practice Problem 2

Select values of the function g are shown in the table below. If g has no other zeros, which is true?

x	-4	-1	2	4	6
$g(x)$	-10	0	-3	0	10

(a) g has a local minimum at $(-4, -10)$.

(b) g has a local maximum at $(-1, 0)$.

(c) g has a local minimum at $(2, -3)$.

(d) g has a local maximum at $(6, 10)$.

Practice Problem 1 Solution:

(d) h has neither a global maximum or a global minimum.

Since the degree is 3, the end behavior goes towards negative infinity in one direction and towards positive infinity in the opposite direction.

Practice Problem 2 Solution:

(b) g has a local maximum at $(-1, 0)$.

Since g increases before $(-1, 0)$ and decreases after, and no other zeros are shown, this must be a local maximum.