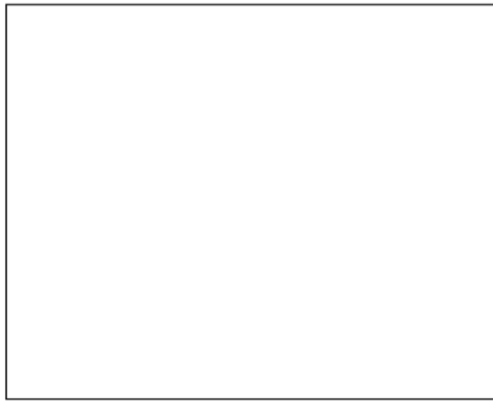


$$x^4 - x^3 - 4x^2 + 1 = f(x)$$



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns: _____

Number of zeros: _____

Actual zeros: _____

Relative minimum(s): _____

Relative maximum(s): _____

State the maximum number of turns the graph of each function could make. Then sketch the graph. State the number of real zeros. Approximate each zero to the nearest tenth. Approximate the relative minima and relative maxima to the nearest tenth.

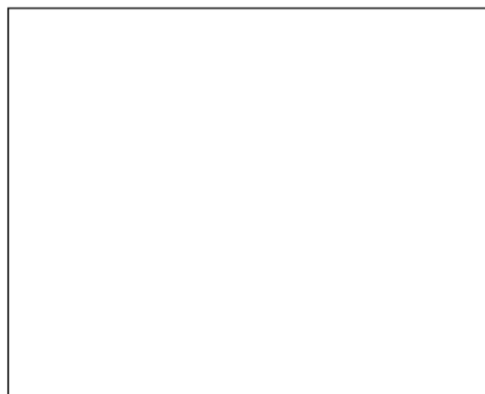
1) $f(x) = x^2 + 2x - 5$



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

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



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

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

↑ y



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

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

↑ y



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

5) $f(x) = x^5 - 4x^3 + 4x - 1$

▲ v



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

6) $f(x) = x^3 + 11x^2 + 35x + 32$

▲ v



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):

7) $f(x) = -x^5 + 4x^3 - 5x - 2$

▲ v



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

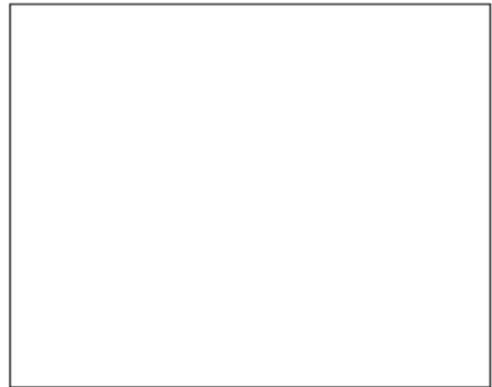
Actual zeros:

Relative minimum(s):

Relative maximum(s):

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

▲ v



Xmin = _____ Ymin = _____

Xmax = _____ Ymax = _____

Maximum number of turns:

Number of zeros:

Actual zeros:

Relative minimum(s):

Relative maximum(s):