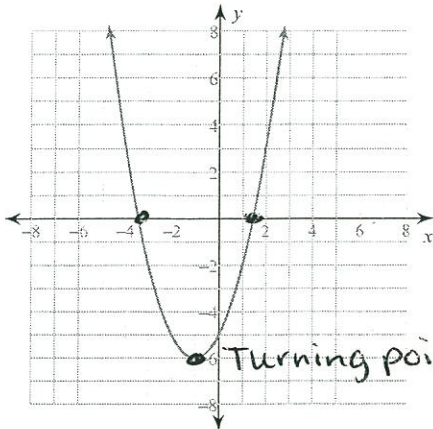


Graphing Polynomial Functions

State the maximum number of turns the graph of each function could make. State the number of real zeros. Approximate each zero to the nearest tenth. Approximate the relative minima and relative maxima to the nearest tenth. How many turning points? Label them. End behavior? And x intercepts!

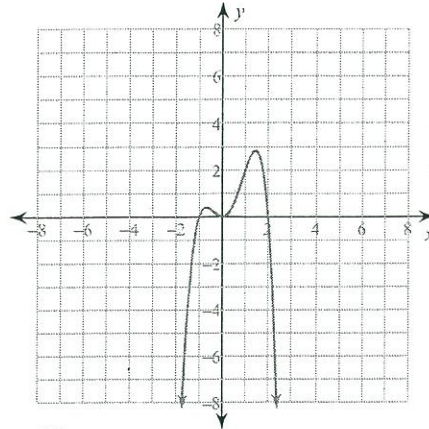
1) $f(x) = x^2 + 2x - 5$



Example: End behavior
 To the right: Up $x \rightarrow \infty$
 To the left: Up $x \rightarrow -\infty$

X-int
 (-3.5, 0)
 (1.5, 0)

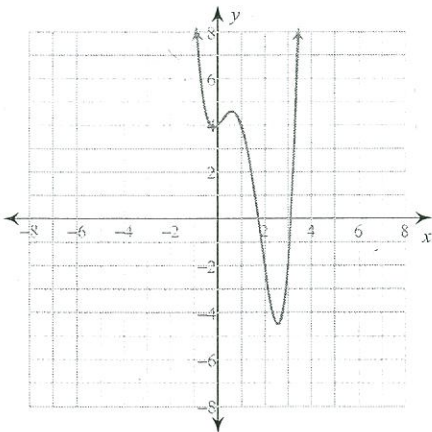
2) $f(x) = -x^4 + x^3 + 2x^2$



End behavior:
 To the right: down $x \rightarrow \infty$
 To the left: down $x \rightarrow -\infty$

X-int
 (-1, 0)
 (0, 0)
 (2, 0)

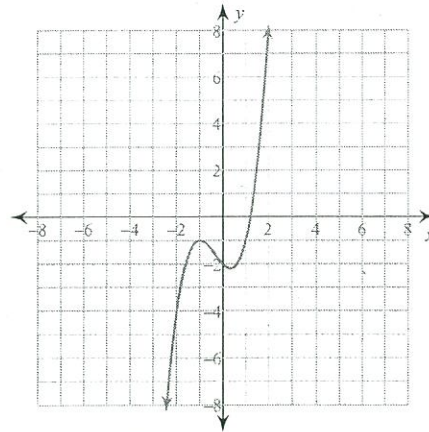
3) $f(x) = x^4 - 4x^3 + 2x^2 + x + 4$



End behavior:
 To the right: Up $x \rightarrow \infty$
 To the left: Up $x \rightarrow -\infty$

approximate
X-int
 (1.5, 0)
 (3, 0)

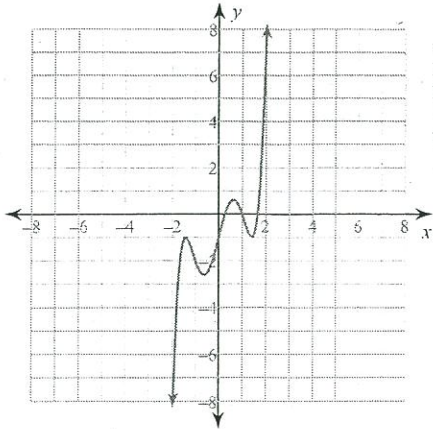
4) $f(x) = x^3 + x^2 - x - 2$



End behavior:
 To the right: Up $x \rightarrow \infty$
 To the left: Down $x \rightarrow -\infty$

Approx
X-int
 (1, 0)

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



End behavior:

To the right: Up
 $x \rightarrow \infty$

To the left: Down
 $x \rightarrow -\infty$

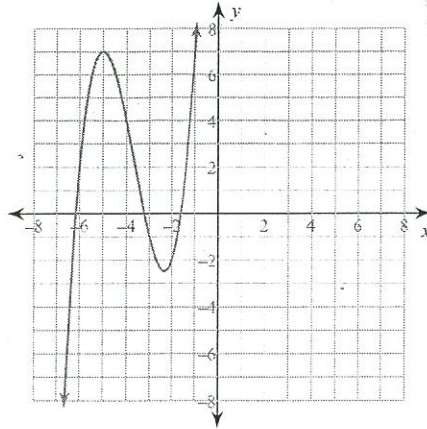
X-int

$(\frac{1}{4}, 0)$

$(1, 0)$

$(1.5, 0)$

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



End behavior:

To the right: Up
 $x \rightarrow \infty$

To the left: Down
 $x \rightarrow -\infty$

Approx:

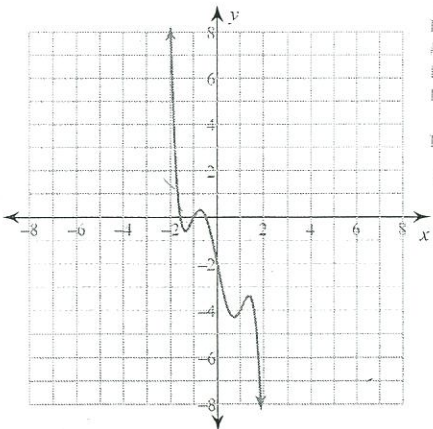
X-int

$(-6, 0)$

$(-3.5, 0)$

$(-1.5, 0)$

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



End behavior:

To the right: Down
 $x \rightarrow \infty$

To the left: Up
 $x \rightarrow -\infty$

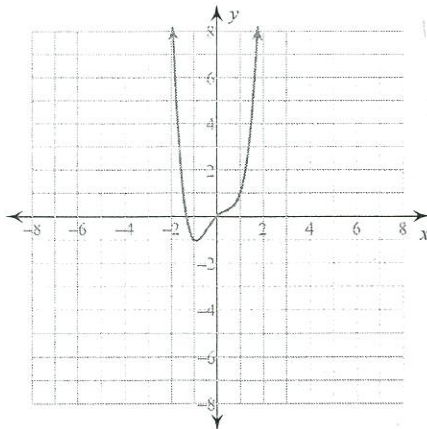
X-int

$(-1.5, 0)$

$(-1, 0)$

$(-0.5, 0)$

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



End behavior:

To the right: Up
 $x \rightarrow \infty$

To the left: Up
 $x \rightarrow -\infty$

X-int

$(-1.5, 0)$

$(0, 0)$