Math 3 Honors Name_____ ID: 1

End Behavior HW

Date_____ Period____

Describe the end behavior of each function.

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

A) Falls to the left. Rises to the right
B) Falls to the left. Falls to the right
C) Rises to the left. Rises to the right
D) Rises to the left. Falls to the right

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

A) Rises to the left. Rises to the right
B) Rises to the left. Falls to the right
C) Falls to the left. Rises to the right
D) Falls to the left. Falls to the right

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

A) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
B) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
C) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
D) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$

4) $f(x) = -x^5 + 2x^3 - x - 1$

A) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
B) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
C) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
D) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$

5) $f(x) = x^3 - 13x^2 + 56x - 77$

A) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
B) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
C) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
D) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$

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

A) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
B) $f(x) \to -\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$
C) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to +\infty$ as $x \to +\infty$
D) $f(x) \to +\infty$ as $x \to -\infty$
$f(x) \to -\infty$ as $x \to +\infty$

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

8) $f(x) = 2x^2 - 16x + 29$

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

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