Algebra 2 - Unit 3

Name_____

4.1 Practice

Date_____ Period_____

For each polynomial, state its:
a) leading coefficient
b) type by degree
c) type by number of terms

1) $n^5 + 6n^4 - 10n^3 - 5n$

   a)

   b)

   c)

   a) leading coefficient: 1
   b) 5th degree
   c) four term polynomial

2) $-3b^4$

   a)

   b)

   c)

   a) leading coefficient: −3
   b) 4th degree
   c) monomial

3) $-x^2 + 8x - 4$

   a)

   b)

   c)

   a) leading coefficient: −1
   b) quadratic
   c) trinomial

4) $10x^6 - 10x^5 + x^2$

   a)

   b)

   c)

   a) leading coefficient: 10
   b) 6th degree
   c) trinomial

5) $9n^4 + n^2 + 9n + 2$

   a)

   b)

   c)

   a) leading coefficient: 9
   b) 4th degree
   c) four term polynomial

6) 7

   a)

   b)

   c)

   a) no leading coefficient
   b) constant
   c) monomial

7) $-6p - 1$

  a)

  b)

  c)

8) $\dfrac{1}{2}p^3$

  a)

  b)

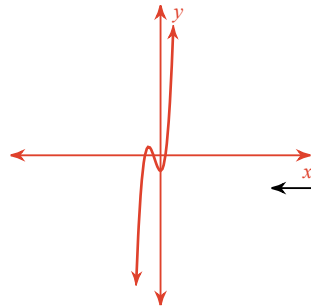 c)

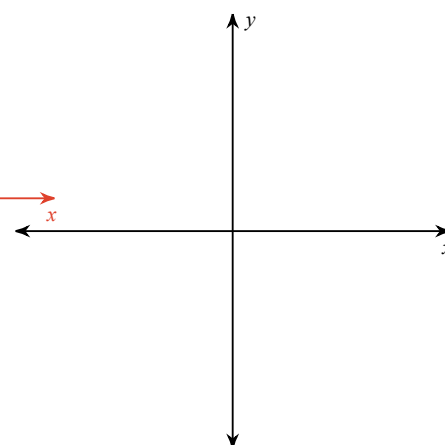**Sketch the general shape of each function. Then state the end behavior.**
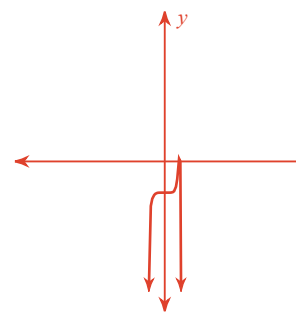
9) $y = 7x^3 + 8x^2 - 1$
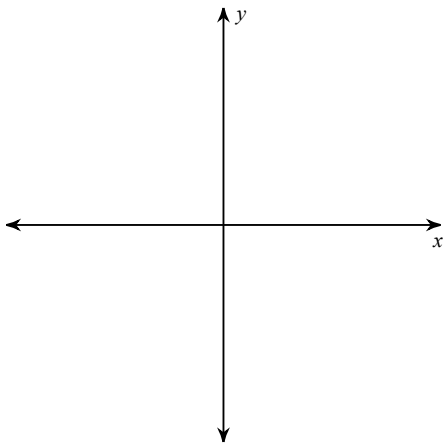
as $x \rightarrow \infty,\ y \rightarrow \infty$
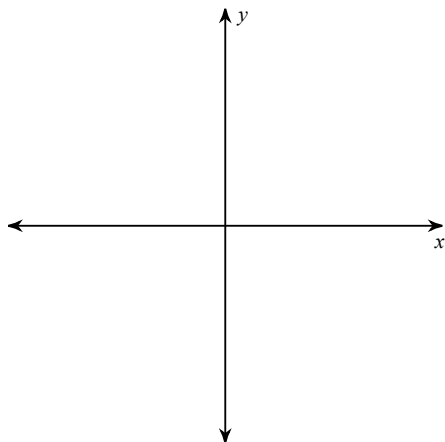as $x \rightarrow -\infty,\ y \rightarrow -\infty$
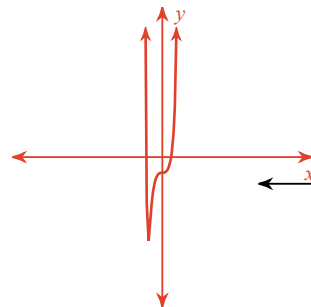
10) $y = -6x^{18} + 5x^{12} + 3x^7 - 2$

as $x \rightarrow \infty,\ y \rightarrow -\infty$
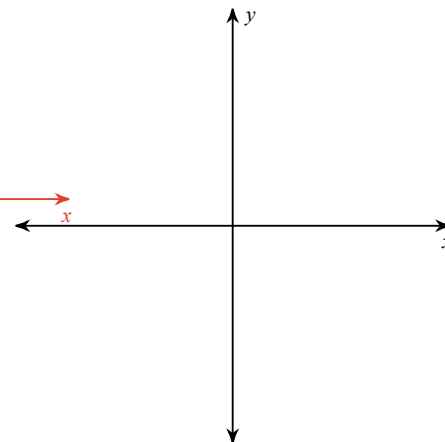as $x \rightarrow -\infty,\ y \rightarrow -\infty$
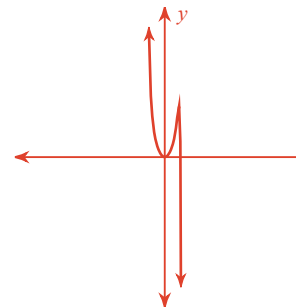
11) $y = 9x^{14} + 6x^7 + 5x^3 - 1$

as $x \rightarrow \infty,\ y \rightarrow \infty$
as $x \rightarrow -\infty,\ y \rightarrow \infty$

12) $y = -3x^{19} - 4x^{14} + 5x^8 + 3x^2$

as $x \rightarrow \infty,\ y \rightarrow -\infty$
as $x \rightarrow -\infty,\ y \rightarrow \infty$

Evaluate each function at the given value.

13) $f(x) = x^6 + 8x^5 + 15x^4 - 2x^3 - 5x^2 + 25x - 7$ at $x = -5$

   -7

14) $f(a) = a^5 + a^4 + 3a^3 + 10a^2 + 5a + 15$ at $a = -2$

   5

15) $f(n) = n^4 - 4n^3 + 5n^2 - 20n - 5$ at $n = 4$

   -5

16) $f(a) = 3a^3 + 9a^2 + 7a + 11$ at $a = -2$

   9