

## Unit 3 Review

Name each polynomial by degree and number of terms.

1)  $-5r - 7$

- A) linear trinomial
- B) quadratic monomial
- C) linear monomial
- D) linear binomial

2)  $-6x^4 + 5x^2 + 8x$

- A) fourth degree monomial
- B) constant trinomial
- C) cubic polynomial with four terms
- D) fourth degree trinomial

3)  $10m^5 - 2m^4 + 10m^3 - 7m^2 - 5m - 8$

- A) sixth degree polynomial with five terms
- B) fifth degree monomial
- C) fourth degree monomial
- D) fifth degree polynomial with six terms

4)  $-9$

- A) fifth degree monomial
- B) constant monomial
- C) linear polynomial with 0 terms
- D) constant binomial

5)  $m^5 - 2m^4 + m^3$

- A) quadratic monomial
- B) fifth degree monomial
- C) cubic polynomial with five terms
- D) fifth degree trinomial

6)  $-x^5 - x$

- A) fifth degree trinomial
- B) cubic binomial
- C) fifth degree binomial
- D) quadratic polynomial with five terms

7)  $5n^2 + 10n - 5$

- A) quadratic trinomial
- B) cubic binomial
- C) quadratic monomial
- D) cubic trinomial

8)  $-9p$

- A) ninth degree constant
- B) linear trinomial
- C) linear monomial
- D) ninth degree monomial

**Simplify.**

9)  $(8 + 4n + 4n^3 + 2n^4) + (8n^4 + 2n + 2n^3 - 2)$

10)  $(3a^2 - 1 - 3a - a^3) - (2a^3 - 2a - 2 + 8a^2)$

**Find each product.**

11)  $(2x + 8)(6x - 1)$

12)  $(7x + 6)(5x^2 + 3x - 8)$

**Divide. You can use either long division or synthetic division.**

13)  $(a^3 + 11a^2 + 20a - 54) \div (a + 5)$

$$14) (4m^3 - 42m^2 + 79m + 9) \div (m - 8)$$

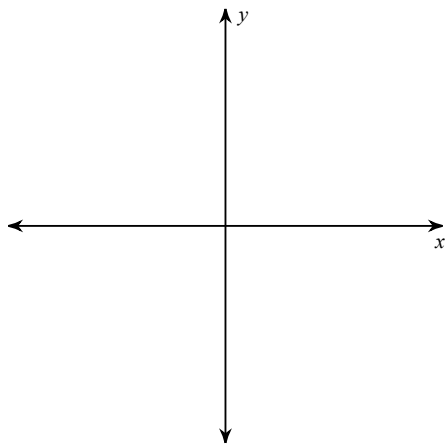
$$15) (n^3 - 11n^2 + 5) \div (n - 1)$$

Sketch the basic graph shape for each function. Then state the end behavior.

16)  $f(x) = -8x^{23} + x^{17} - 4x^6 + 8x^2$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

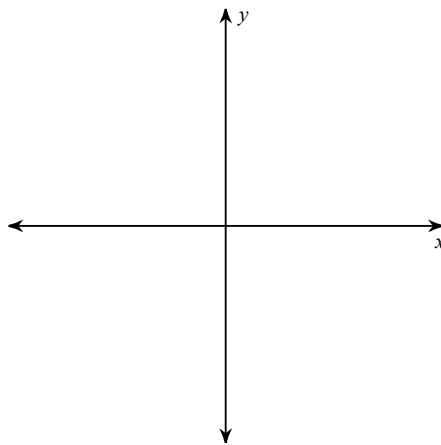
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



17)  $f(x) = 9x^5 + x^2 - 4 + 9$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

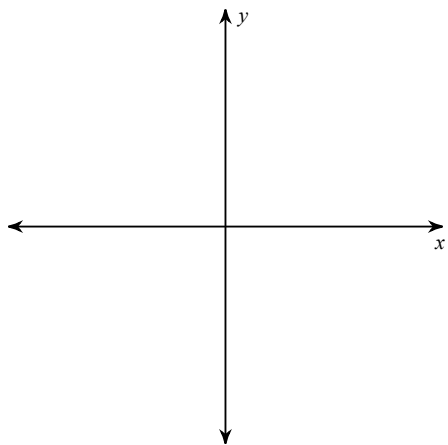
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



18)  $f(x) = x^{10} - 8x^7 - 5x^6 + 4x^3 - 1$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

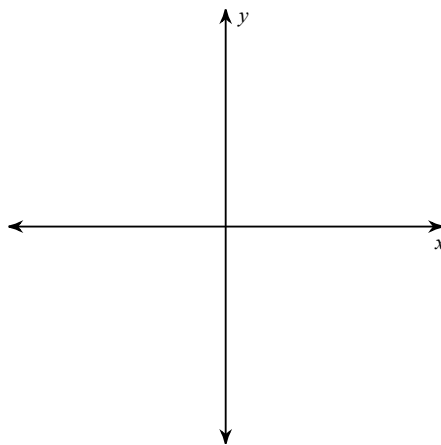
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



19)  $f(x) = 2x^{17} + 8x^{10} - 12x^6 + 14x$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

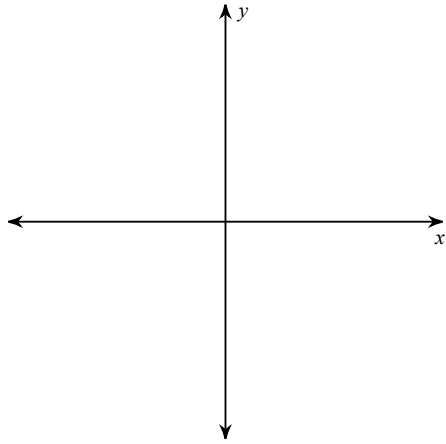
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



20)  $f(x) = -x^{15} + x^{12} - 18$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

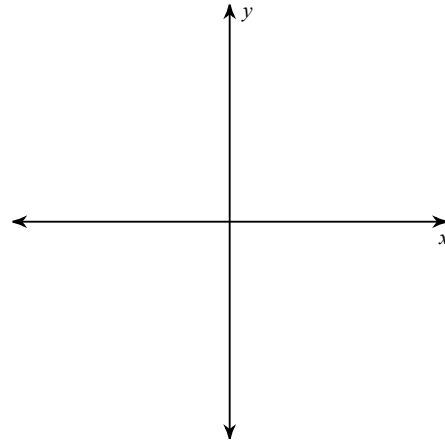
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



21)  $f(x) = -6x^{14} - 7x^{11} + 6x^8 + 4x^2$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

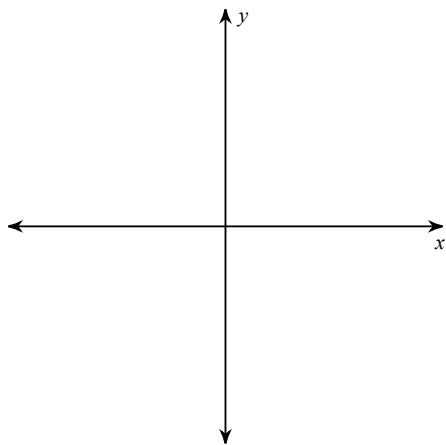
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



22)  $f(x) = 13x^{16} + 7x^{12} - 5x^5 - 2x^2$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

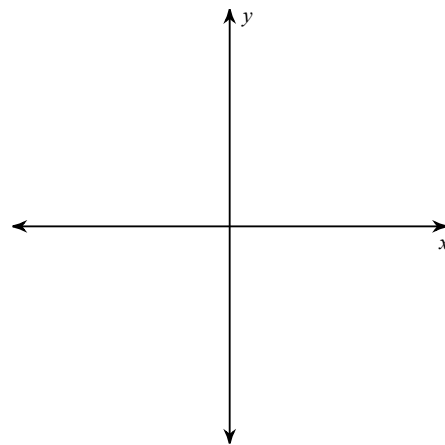
as  $x \rightarrow -\infty$ ,  $y \rightarrow$  \_\_\_\_\_



23)  $f(x) = -x^8 + 3x^2 + 6x$

as  $x \rightarrow +\infty$ ,  $y \rightarrow$  \_\_\_\_\_

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



## Answers to Unit 3 Review

1) D

2) D

3) D

4) B

5) D

6) C

7) A

8) C

9)  $10n^4 + 6n^3 + 6n + 6$

10)  $-3a^3 - 5a^2 - a + 1$

11)  $12x^2 + 46x - 8$

12)  $35x^3 + 51x^2 - 38x - 48$

13)  $a^2 + 6a - 10 - \frac{4}{a + 5}$

14)  $4m^2 - 10m - 1 + \frac{1}{m - 8}$

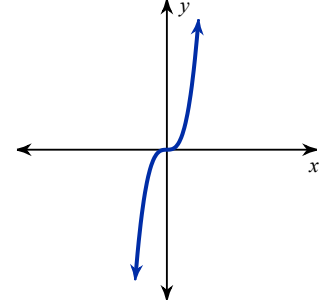
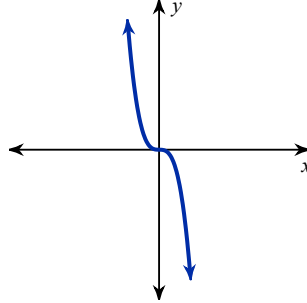
15)  $n^2 - 10n - 10 - \frac{5}{n - 1}$

16) as  $x \rightarrow +\infty, y \rightarrow -\infty$

17) as  $x \rightarrow +\infty, y \rightarrow +\infty$

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

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



18) as  $x \rightarrow +\infty, y \rightarrow +\infty$

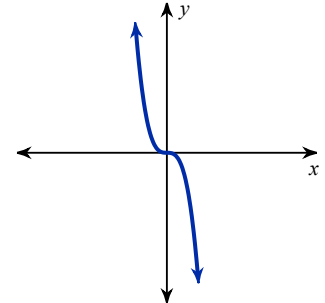
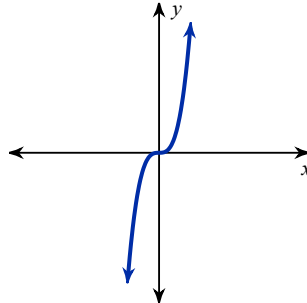
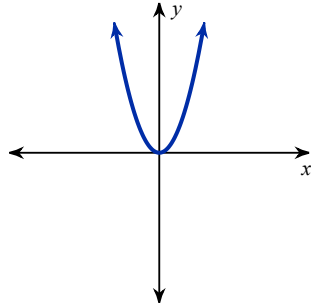
19) as  $x \rightarrow +\infty, y \rightarrow +\infty$

20) as  $x \rightarrow +\infty, y \rightarrow -\infty$

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

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

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



21) as  $x \rightarrow +\infty, y \rightarrow -\infty$

22) as  $x \rightarrow +\infty, y \rightarrow +\infty$

23) as  $x \rightarrow +\infty, y \rightarrow -\infty$

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

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

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

