End Behavior of Polynomial Functions

Identify the leading coefficient, degree, and end behavior.

1. \( f(x) = 5x^2 + 7x - 3 \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

2. \( y = -2x^2 - 3x + 4 \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

3. \( g(x) = x^3 - 9x^2 + 2x + 6 \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

4. \( y = -7x^3 + 3x^2 + 12x - 1 \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

5. \( h(x) = -2x^7 + 5x^4 - 3x \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

6. \( g(x) = 8x^3 + 4x^2 + 7x^4 - 9x \)
   Degree: 
   Leading Coeff: 
   End Behavior: 

Identify the end behavior. Justify your answer.

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

8. \( y = -x^4 + x^3 - x^2 + 1 - 1 \)

9. \( h(x) = 3x^6 - 7x^4 - 2x^9 \)

Identify whether the function graphed has an odd or even degree and a positive or negative leading coefficient. Justify your answer.

10. deg: 
    coeff: 
    justify: 

11. deg: 
    coeff: 
    justify: 

12. deg: 
    coeff: 
    justify: 

13. deg: 
    coeff: 
    justify: 

14. deg: 
    coeff: 
    justify: 

15. deg: 
    coeff: 
    justify: 

16. Write a polynomial function with end behavior of:
    on the left \( f(x) \) goes to \( + \infty \) and on the right \( f(x) \) goes to \( - \infty \).
17. Write a polynomial function with end behavior of:
   on the left \( f(x) \) goes to \( +\infty \) and on the right \( f(x) \) goes to \( +\infty \).

18. Sketch a graph of a polynomial function with a negative lead coefficient and an even degree.

19. Sketch a graph of a polynomial function with a positive lead coefficient and an odd degree.

20. The equation of the polynomial function to the right is
   \[ f(x) = x^4 + x^3 - 2x^2 - 1 \]
   Write an equation for a translation of \( f(x) \) that has no \( x \)-intercepts.
   (If not possible, explain why.)

21. The equation of the polynomial function to the right is
   \[ g(x) = -2x^3 + 2x^2 + 4x \]
   Write an equation for a translation of \( g(x) \) that has no \( x \)-intercepts.
   (If not possible, explain why.)