

1. Identify intervals of increasing, decreasing, and/or constant: $f(x) = x^3 - 3x$

2. Determine the remainder. If the binomial is a factor, find the remaining factors.

$$(x^3 - x^2 - 10x - 8) \div (x + 2)$$

3. Use Descartes's Rule of Signs to determine the number of possible positive/negative real zeros

$$f(x) = 2x^5 + 4x^4 + 9x^3 + 18x^2 - 35x - 70$$

4. Determine whether the function is even, odd, or neither:

$$f(x) = 12x^7 + 6x^3 - 2x$$

5. Identify the equation for the horizontal asymptote: $f(x) = 4^{x+1} - 5$

6. Determine the ordered pair for the y-intercept: $f(x) = 4^{x+1} - 5$

7. Write (2) end behavior statements, using limits, for the following function:

$$f(x) = 3x^4 - 5x^5 + 2x^2 - 9$$

8. Identify the ordered pair for the hole of this rational function: $f(x) = \frac{x^2 - 6x - 27}{x^2 - 81}$

9. Identify the vertical asymptote(s) of the rational function: $f(x) = \frac{x^2 - 6x - 27}{x^2 - 81}$

10. Identify the transformations from the parent function $f(x) = 3^x$; $f(x) = 3^{x-4} + 7$