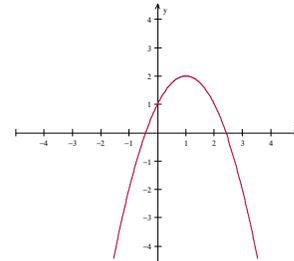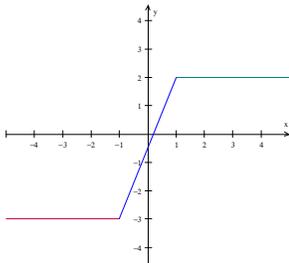Increasing and Decreasing Functions
Even and Odd Functions
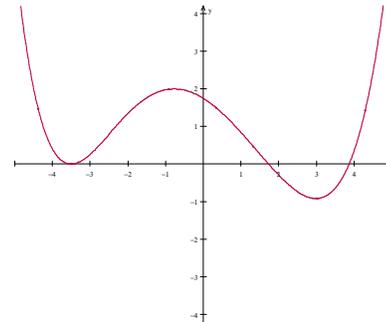Piecewise Functions
Relative Extrema

1. Use the graph to determine intervals where the function is increasing, decreasing, and constant.
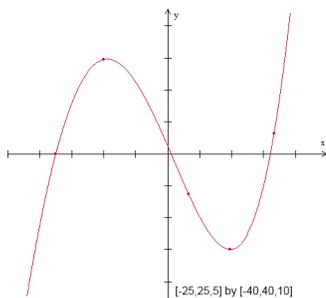
2. Use the graph to determine intervals where the function is increasing, decreasing, and constant.

3. Use the graph to determine any relative maximum(s) and relative minimum(s)

4. Use the graph to determine any relative maximum(s) and relative minimum(s)

[-25,25,5] by [-40,40,10]

5. Determine whether each function is even, odd, or neither:

$$f(x) = x^5 - x^3$$

6. Determine whether each function is even, odd, or neither:
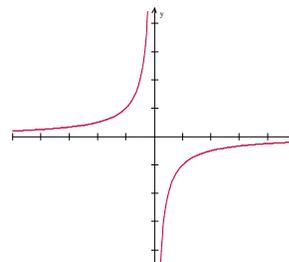
$$g(x) = x^4 - x^3$$

7. Determine whether each function is even, odd, or neither:

$$h(x) = 3x^2 + 1$$

8. Determine whether each function is even, odd, or neither:

$$f(x) = x^7 - x$$

9. Use possible symmetry to determine whether each graph is the graph of an even function, an odd function, or a function that is neither even nor odd:

10. Use possible symmetry to determine whether each graph is the graph of an even function, an odd function, or a function that is neither even nor odd:
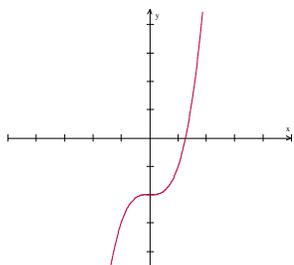
11. Evaluate each piecewise function at the given values of the independent variable:

$$f(x) = \begin{cases} 9x+2 & if \quad x < 2 \\ 8x-1 & if \quad x \geq 2 \end{cases}$$

$a) f(-5)$

$b) f(2)$

$c) f(8)$

12. Evaluate each piecewise function at the given values of the independent variable:

$$h(x) = \begin{cases} \dfrac{7x-1}{x+2} & \text{if } x \neq -2 \\ 4 & \text{if } x = -2 \end{cases}$$

$a)h(-5)$

$b)h(-2)$

$c)h(4)$

13. Graph:

$$f(x) = \begin{cases} x-3 & \text{if } x < -2 \\ x+1 & \text{if } x \geq -2 \end{cases}$$

14. Graph:

$$f(x) = \begin{cases} 2 & \text{if } x < -2 \\ -2x & \text{if } -2 \leq x < 0 \\ x^2 + 3 & \text{if } x \geq 0 \end{cases}$$