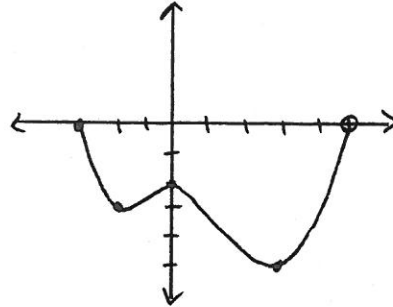


1. Simplify the difference quotient $\frac{f(x+h)-f(x)}{h}$ for $f(x)=8x-11$.

2. Find the following:

- domain
- range
- x- and y-intercepts
- intervals increasing, decreasing, constant
- $f(3)$
- relative minima, maxima



3. Determine whether each is even, odd, or neither. State the symmetry of each function.

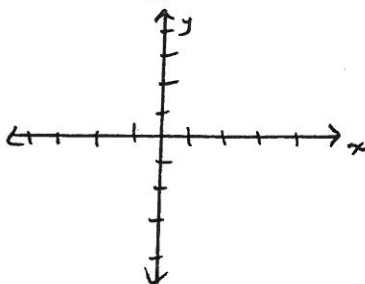
a. $f(x) = x^3 - 5x$ b. $f(x) = x^4 - 2x^2 + 1$ c. $f(x) = 2x\sqrt{1-x^2}$

4. Write the equation of a line that is perpendicular to the line $6x - y - 4 = 0$ and passes through $(-12, -1)$.

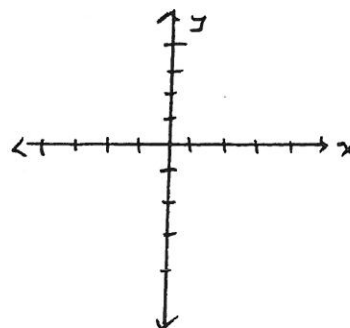
5. Find the average rate of change of $f(x) = x^2 - 4x$ from $x=5$ to $x=9$.

6. Graph:

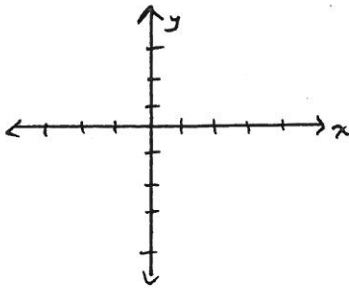
a. $f(x) = \frac{1}{2}(x-1)^2 + 1$



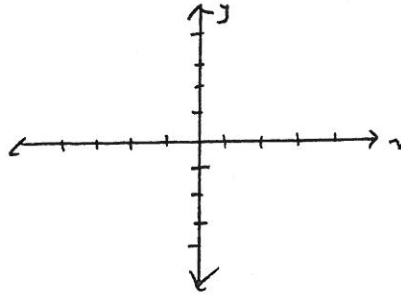
b. $f(x) = -2\sqrt{x+2}$



c. $f(x) = \frac{1}{4}x^3 - 1$



d. $f(x) = 2\sqrt[3]{x+1}$



7. Find the domain of $\sqrt{x^2 - 9}$.

8. Find $f(g(x))$ and its domain.

a. $f(x) = \frac{x+1}{x-2}$, $g(x) = \frac{1}{x}$

b. $f(x) = \sqrt{x-1}$, $g(x) = x+3$

9. Find the equation for $f^{-1}(x)$:

a. $f(x) = 8x^3 + 1$

b. $f(x) = \frac{2}{x} + 5$

10. Write in completed square form, graph and give domain and range.

$$x^2 + y^2 - 4x + 2y - 4 = 0$$