1. Give the domain of each function. Use interval notation:

    a. $f(x) = \dfrac{2x+1}{3x-6}$.

    b. $g(x) = \dfrac{x^2 - x - 11}{2x^2 - 3x - 9}$

    c. $h(x) = \sqrt{8 - 3x}$

    d. $j(x) = \sqrt{3 - |x|}$

    e. $k(x) = \sqrt{\dfrac{-7}{2x+1}}$

    f. $l(x) = 3x^2 - \sqrt[4]{x-1} - \dfrac{5}{x-5}$

2. Let $f(x) = \dfrac{4x+3}{2x-1}$.

    a. Is 9 in the domain of f? Is 9 in the range of f? Explain.

    b. Is 2 in the domain of f? Is 2 in the range of f? Explain.

    c. Is $\dfrac{1}{2}$ in the domain of f? Is $\dfrac{1}{2}$ in the range of f? Explain.

3. Do the points $(3, -8)$, $(12, 4)$, and $(\frac{3}{2}, -10)$ lie on a line? If so, write the equation of the line in the form $y = mx + b$. If not, explain why not. Do the same for the points $(1, -5)$, $(7, 13)$ and $(-2, -15)$.

4. Find the equation of each line described. Write your answers in the form $y = mx + b$.

    a. The line containing the points $(-2, 7)$ and $(\frac{1}{2}, -2)$.

   b. The line with x-intercept 10 and y-intercept 8.
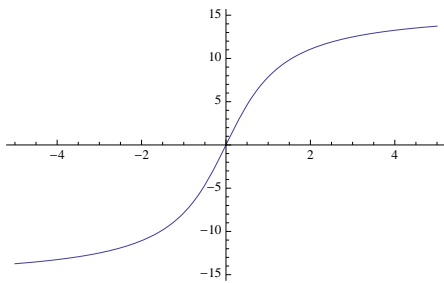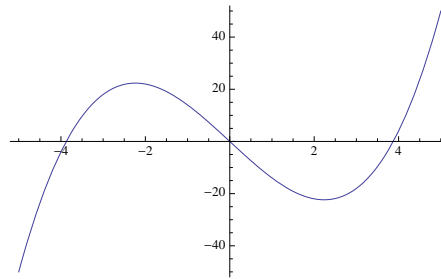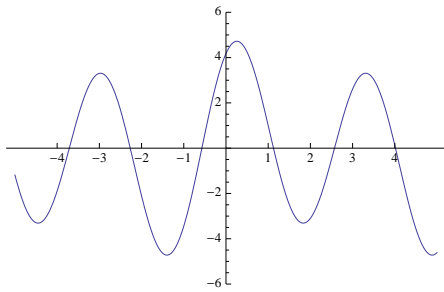
    c. The line with x-intercept 12 and slope $\frac{2}{3}$.

    d. The line with y-intercept 12 and slope $\frac{2}{3}$.

    e. The line containing the point $(10, 3)$ and parallel to the line whose equation is $3x - 5y = 15$.

    f. The line containing the point $(10, 3)$ and perpendicular to the line whose equation is $3x - 5y = 15$.

5. The graphs of various functions are shown. Determine whether the functions are even, odd, or neither.
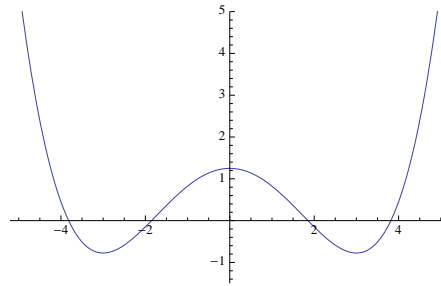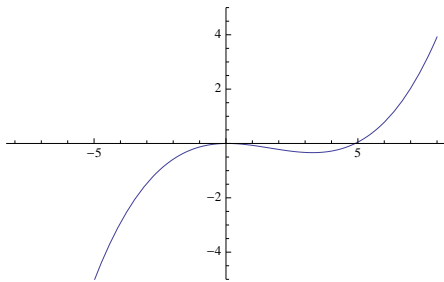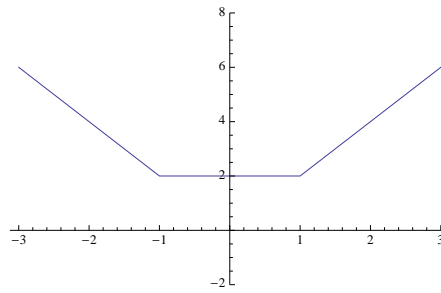
6. Use algebraic techniques (checking to see if $f(-x) = f(x)$ or $f(-x) = -f(x)$) to determine whether the given function is even, odd, or neither.

a. $f(x) = |x|$

b. $f(x) = x\sqrt{1 - x^2}$

c. $f(x) = x(x^2 + 1) + x^3$

d. $f(x) = |x| - x^2$

e. $f(x) = \dfrac{x^3 - 3}{x^2 + 1}$