Math 261 - Lab 1 **Algebra Review** **Name:** _____

1. Evaluate each of the following.

   (a) $(-3)^2$ (b) -3^2 (c) $\sqrt[3]{-27}$ (d) $\dfrac{\sqrt{50}}{\sqrt{2}}$

2. Find an equation for a line meeting each description.

   (a) The line that passed through the points $(4, -3)$ and $(2, 1)$.

   (b) The line with the same x-intercept as $x - 2y = 4$ and which is parallel to the line that passed through the points $(4, -2)$ and $(-3, 1)$.

3. Given the graphs of functions f and g as defined below:

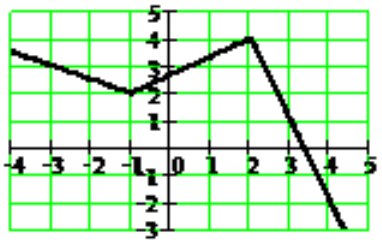
   (a) Find the equation of the segment that passes through $g(1)$.

   (b) Find the equation of the segment that passes through $f(1)$.

   (c) Approximate the domain and range for f and g.

   (d) Determine the exact value of $(f \circ g)(1)$.

f



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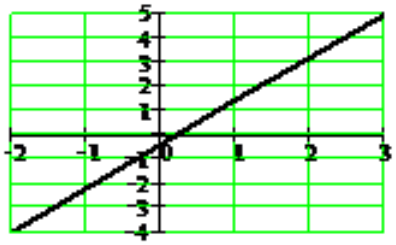
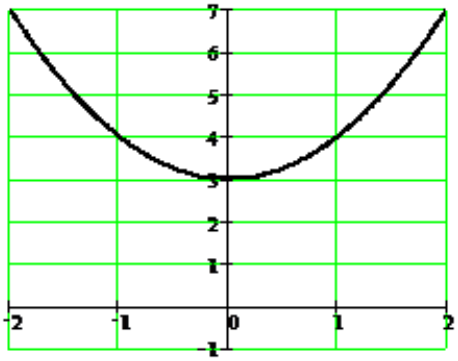


4. For the functions f and g defined by the graphs below, compute each of the following(if possible).

$f(-1)$ $f(0)$ $f(1)$ $g(-1)$ $g(0)$ $g(1)$

f



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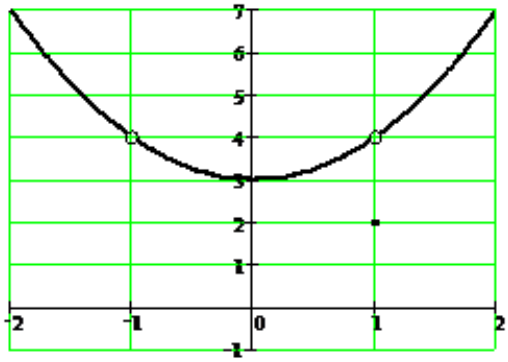


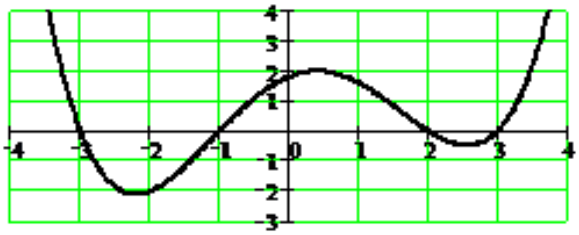
5. For the function f defined by the graph below: (*Assume only the visible graph.*)

(a) Determine the values when $f(x) < 0$.

(b) Approximate the value(s) of x when $f(x) = 1$.

(c) Approximate the domain and range of f. (**Assume only the visible graph.**)

(d) Approximate the intervals where f is decreasing. (**Assume only the visible graph.**)



6. Simplify each of the following. The answers must have no negative exponents and must be factored completely.

(a) $\dfrac{\frac{1}{t+h+1} - \frac{1}{t+1}}{h}$

(b) $\dfrac{\frac{2}{3}(x-1)^{-\frac{1}{3}}(x+2)^2 - 2(x-1)^{\frac{2}{3}}(x+2)}{[(x+2)^2]^2}$