

University of Lethbridge
Department of Mathematics and Computer Science
MATH 1560 - Tutorial #1
Monday, January 15

Some additional practice (copy these into your notes but do not submit anything):

1. Given $f(x) = \sqrt{x}$, $g(x) = x^2$, and $h(x) = e^{2x}$, compute:

(a) $f(f(x))$ (b) $f(g(x))$ (c) $g(f(x))$ (d) $g(h(x))$ (e) $h(f(x))$

Does $f(g(x)) = g(f(x))$? Why or why not? (Hint: what if $x < 0$?)

2. Determine if the function is even, odd, or neither:

(a) $f(x) = \frac{x^3}{x^2 + 1}$ (b) $g(x) = x|x|$ (c) $h(x) = \cos(x^5)$

1. Find the domain of the following functions. Write your answer in interval notation.

(a) $f(x) = \frac{x+1}{x^2+5x+6}$ (b) $g(x) = \sqrt{x+2} - \sqrt{3-x}$ (c) $h(x) = \ln(x^2-1)$

2. Consider the function $f(x) = \begin{cases} 1-x, & \text{if } x \leq 1 \\ x^2, & \text{if } x > 1. \end{cases}$. Evaluate $f(-1)$, $f(0)$, $f(1)$, and $f(2)$.
Then, sketch a rough graph.

3. Rewrite $f(x) = |x^2 - x - 2|$ as a piecewise function (without the absolute value).