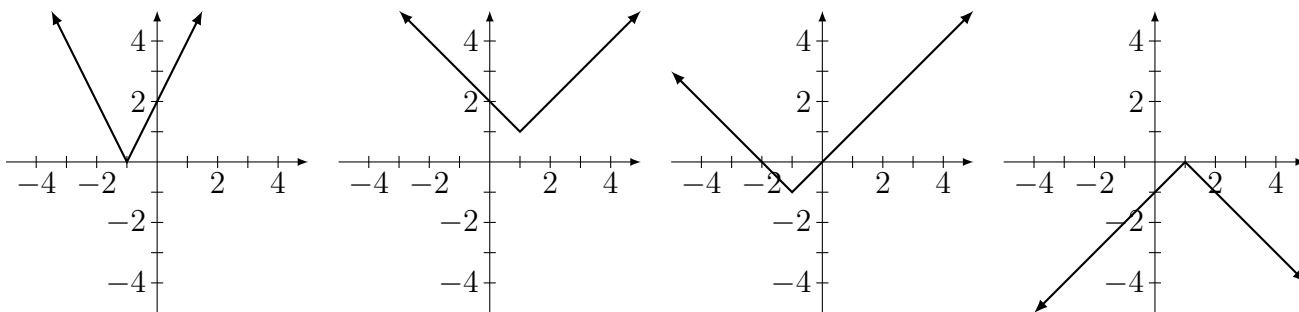


1. (4 points) The following four graphs are of the equations $y = -|x - 1|$, $y = |x + 1| - 1$, $y = |x - 1| + 1$, and $2|x + 1|$. Label which is which:



2. (4 points) Describe in words, using specific quantities and directions when necessary, the transformation to the graph of $f(x) = \sqrt{x}$ needed to get the graphs of the following functions:

- $g(x) = \sqrt{x - 3}$.
- $h(x) = \sqrt{-x}$.
- $r(x) = \sqrt{5x}$.
- $q(x) = \sqrt{x} + 2$.

3. (4 points) Let $f(x) = \frac{1}{x+2}$ and $g(x) = \frac{x^2}{x-1}$. Write out explicit formulas for the following functions. *Do not algebraically simplify your results.*

- (3 points) $(f \circ g)(x)$
- (1 point) $(g - f)(x)$

4. (4 points) As above, let $f(x) = \frac{1}{x+2}$ and $g(x) = \frac{x^2}{x-1}$. Determine the domains of $(f + g)(x)$, $(f - g)(x)$, $(fg)(x)$, and $\frac{f}{g}(x)$, expressed either in interval notation or as conditions on x . *Label which is which.*