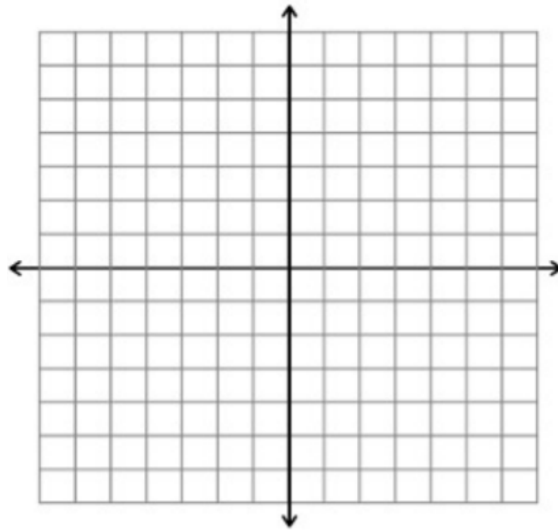


SHOW ALL WORK!!! Unsupported answers might not receive full credit. Furthermore, please give me EXACT answers. You have 15 minutes to complete this quiz.

Problem 1 [4 pts] Consider the function s given by $s(x) = \begin{cases} -x^2 - 1 & \text{for } x \leq 1 \\ \frac{1}{2}x + \frac{1}{2} & \text{for } x > 1 \end{cases}$.

(a). [2 pts] Graph s .



(b). [2 pts] Use interval notation to write the intervals over which s is increasing, decreasing, or constant.

Problem 2 [4 pts] Consider the functions $s(x) = \frac{x-3}{x^2-25}$ and $t(x) = \frac{x-5}{x-3}$.

(a). [2 pts] Find $(s \cdot t)(x)$ and state its formula in simplified form.

(b). [2 pts] Write the domain for $(s \cdot t)$ in interval notation.

Problem 3 [2 pts] Find two functions f and g such that $h(x) = (f \circ g)(x)$, where $h(x) = \sqrt[5]{3x+2}$.