

Classwork Piecewise Defined Functions

Please GRAPH all the following problems on a separate sheet of paper.

$$1. \ f(x) = \begin{cases} 2x & \text{if } x \neq 0 \\ 1 & \text{if } x = 0 \end{cases}$$

$$2. \ f(x) = \begin{cases} 3x & \text{if } x \geq 0 \\ -4 & \text{if } x < 0 \end{cases}$$

$$3. \ f(x) = \begin{cases} -2x + 3 & \text{if } x < 1 \\ 3x - 2 & \text{if } x \geq 1 \end{cases}$$

$$4. \ f(x) = \begin{cases} 1+x & \text{if } x < 0 \\ x^2 & \text{if } x \geq 0 \end{cases}$$

$$5. \ f(x) = \begin{cases} |x| & \text{if } -2 \leq x < 0 \\ -3 & \text{if } x = 0 \\ x^3 & \text{if } x > 0 \end{cases}$$

$$6. \ f(x) = \begin{cases} x+3 & \text{if } -3 \leq x < 0 \\ 2 & \text{if } x = 0 \\ \sqrt{x} & \text{if } x > 0 \end{cases}$$

$$7. \ f(x) = \begin{cases} \sqrt[3]{x} + 1 & \text{if } x > 0 \\ -x^3 & \text{if } x \leq 0 \end{cases}$$

$$8. \ f(x) = \begin{cases} x & \text{if } x < 0 \\ 2x+1 & \text{if } x \geq 0 \end{cases}$$

$$9. \ f(x) = \begin{cases} 4-x & \text{if } x < 2 \\ 2x-2 & \text{if } x \geq 2 \end{cases}$$

$$10. \ f(x) = \begin{cases} -x+1 & \text{if } x \leq 1 \\ x^2-1 & \text{if } x > 1 \end{cases}$$

$$11. \ f(x) = \begin{cases} -x-1 & \text{if } x < -1 \\ 0 & \text{if } -1 \leq x \leq 1 \\ x-1 & \text{if } x > 1 \end{cases}$$

$$12. \ f(x) = \begin{cases} x-1 & \text{if } x \leq 0 \\ -1 & \text{if } x > 0 \end{cases}$$

$$13. \ f(x) = \begin{cases} x-1 & \text{if } x \leq 3 \\ -2x+8 & \text{if } x > 3 \end{cases}$$

$$14. \ f(x) = \begin{cases} x & \text{if } x < 1 \\ 0 & \text{if } x = 1 \\ -x+2 & \text{if } x > 1 \end{cases}$$

$$15. \ f(x) = \begin{cases} -2x+4 & \text{if } x < 1 \\ 4 & \text{if } x = 1 \\ x^2+1 & \text{if } x > 1 \end{cases}$$

$$16. \ f(x) = \begin{cases} |x| & \text{if } x \neq 0 \\ 1 & \text{if } x = 0 \end{cases}$$

$$17. \ f(x) = \begin{cases} |x-1| & \text{if } x \neq 1 \\ 2 & \text{if } x = 1 \end{cases}$$