



1-3 Reteach to Build Understanding

Piecewise-Defined Functions

A piecewise-defined function has different rules for different parts, or pieces, of its domain. In order to evaluate a piecewise-defined function for a given value of x , find the interval, or piece, that x belongs to. Find the corresponding definition of the function for that interval.

1. Given the function

$$f(x) = \begin{cases} 3 & -5 \leq x < -2 \\ x - 2 & -2 \leq x \leq 0 \end{cases}$$

Solve the piecewise-defined functions for the values listed. Use the equations shown for each group.

Use $f(x) = 3$

$-5 \leq x < -2$ to solve a – c.

a. $f(-5) = 3$

b. $f(-4) =$

c. $f(-3) =$

Use $f(x) = x - 2$

$-2 < x < 0$ to solve d – f.

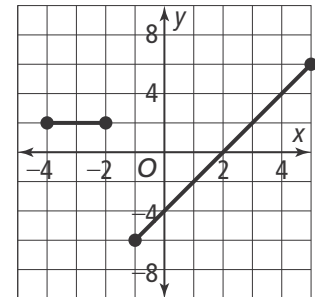
d. $f(-2) =$

e. $f(-1) = -3$

f. $f(0) =$

2. Deon graphed the piecewise-defined function. Explain what mistake he made and how he should fix it.

$$f(x) = \begin{cases} 4 & -4 < x < -2 \\ 2x - 4 & -1 < x < 2 \\ 3x & 2 \leq x < 5 \end{cases}$$



3. Use the piecewise-defined function to fill in the blanks with the correct answer.

$$f(x) = \begin{cases} 4 & -4 < x < -2 \\ 2x - 4 & -1 < x < 2 \\ 3x & 2 \leq x < 5 \end{cases}$$

a. The domain

is used when graphing the function $f(x) = 2x - 4$.

b. The equation

is used to find $f(x) = 15$.