

Piecewise Functions

First & Last Name: _____ Class: _____

If you did not get full points on the *Piecewise Functions* section of the “Pre-Review” test, attempt all of the (non-challenge) questions on this handout. Check your answers using the answer key. If you did not get a correct answer, use Khan Academy to review and master the topic.

Honor Students: you are expected to master the challenge questions.

Section 1: Evaluate piecewise functions (KA link)

1. What is $g(6)$ if

$$g(x) = \begin{cases} x^2 + 5 & \text{when } x \in (-\infty, -7) \\ 8x + 17 & \text{when } x \in [-7, 3] \\ (x - 1)(x + 6) & \text{when } x \in (3, \infty) \end{cases}$$

2. What is $f(-8)$ if

$$f(t) = \begin{cases} t^2 - 2t & , t \leq -8 \\ t + 17 & , -8 < t < -3 \\ \frac{t^3}{t+10} & , t \geq 3 \end{cases}$$

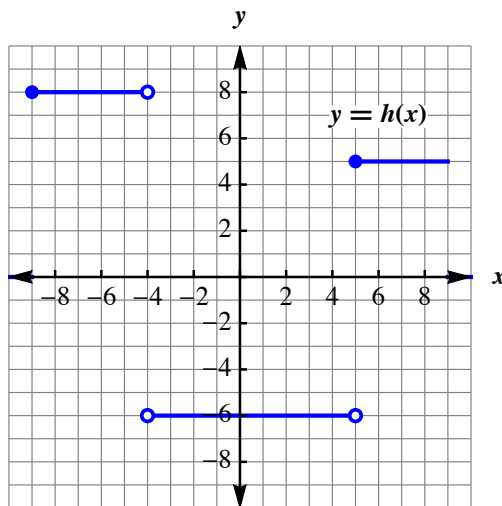
3. [Challenge] What is $h(0)$ if

$$h(x) = \begin{cases} x^4 - \sqrt{6-x} & , x \leq -6 \\ 6 - x & , -6 < t < 0 \\ x^3 & , t > 0 \end{cases}$$

Section 2: Evaluate step functions (KA link)

1. Use the graph to evaluate:

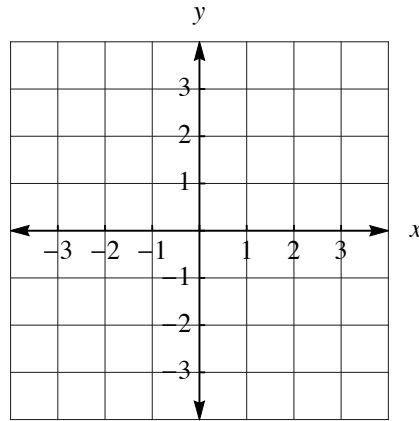
- a. $h(-4.0001)$
- b. $h(-4)$
- c. $h(-3.999)$
- d. $h(5.0001)$



Section 3: Piecewise functions graphs (KA link)

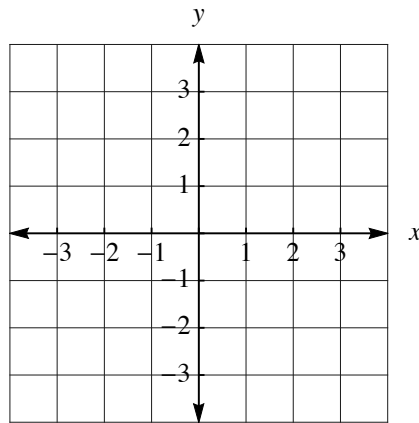
1. Graph the piecewise function

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



2. Graph the piecewise function

$$g(x) = \begin{cases} x+1 & x < -2 \\ 3 & -2 \leq x < 1 \\ -2x+4 & x \geq 1 \end{cases}$$



3. Write the piecewise function for the following graph:

