Functions (Part 1): Function Notation and Evaluate Functions

Section 1: Evaluate functions (KA link)

1. If $f(x) = -11x - 3$, find

a. $f(0) = -11(0) - 3 = 0 - 3 = -3$

b. $f(1) = -11(1) - 3 = -11 - 3 = -14$

c. $f(-2) = -11(-2) - 3 = 22 - 3 = 19$

d. $f(-5) = -11(-5) - 3 = 55 - 3 = 52$

2. [Challenge]

a. If $g(t) = 3t^2 - 5$ find $g(-3)$.

$g(-3) = 3(-3)^2 - 5 = 3 \cdot 9 - 5 = 27 - 5 = 22$

b. If $j(k) = 2^{k+1}$ find $j(2)$.

$j(2) = 2^{2+1} = 2^3 = 8$

Section 2: Evaluate functions from their graph (KA link)

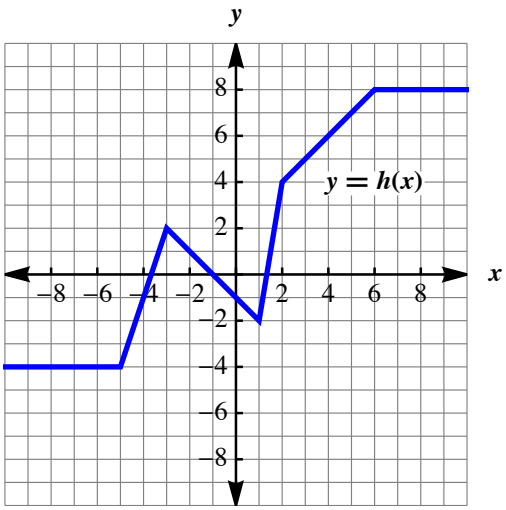
1. Use the graph to find

a. $h(-4) = -1$

b. $h(1) = -2$

c. $h(5) = 7$

d. $h(-10) = -4$



Section 3: Evaluate function expressions (KA link)

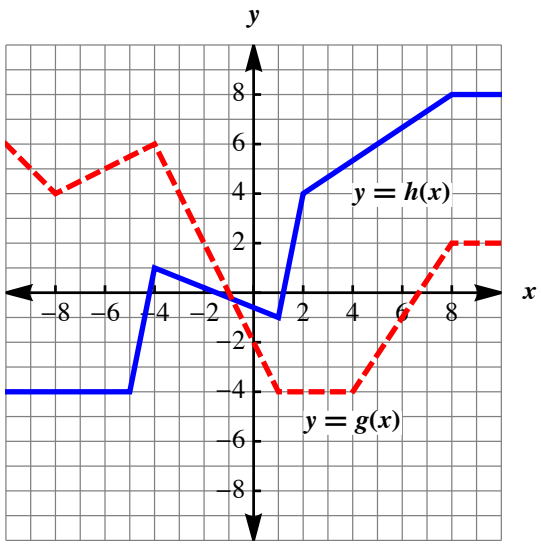
1. Use the graph to find

a. $3 \cdot h(2) - 2 \cdot g(-8)$

$h(2) = 4$
$g(-8) = 4$
$3 \cdot h(2) - 2 \cdot g(-8) = 3\,(4) - 2\,(4) = 12 - 8 = 4$

b. $3\,g(4) - 2\,h(5)$

$g(4) = -4$
$h(5) = 6$
$3\,g(4) - 2\,h(5) = 3\,(-4) - 2\,(6) = -12 - 12 = -24$



Section 4: Function inputs & outputs: equation (KA link)

1. If $g(x) = -4\,x + 7$, then $g\,(\quad) = 19$.

$g(x) = -4\,x + 7 = 19$
$-4\,x + 7 = 19$
$-4\,x = 12$
$x = -3$
$g(-3) = 19$

2. If $f(t) = 11\,t - 10$, then $f\,(\quad) = -43$.

$f(t) = 11\,t - 10 = -43$
$11\,t - 10 = -43$
$11\,t = -33$
$t = -3$
$f(-3) = -43$

3. [Challenge] If $h(x) = \frac{x}{2} - \frac{2}{3}$, then $h\left(\quad\right) = \frac{-5}{3}$.

$h(x) = \dfrac{x}{2} - \dfrac{2}{3} = -\dfrac{5}{3}$

$\dfrac{x}{2} - \dfrac{2}{3} = -\dfrac{5}{3}$

$\dfrac{x}{2} = -\dfrac{5}{3} + \dfrac{2}{3}$

$\dfrac{x}{2} = -1$

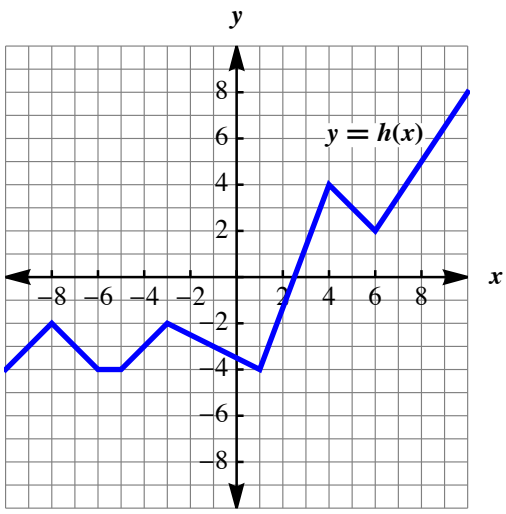
$x = -2$

$h(-2) = -\dfrac{5}{3}$

Section 5: Function inputs & outputs: graph (KA link)

1. If $h(x) = 4$, then $x = 4$ or 7.2

2. If $h(x) = -2$, then $x = -8, -3$, or 1.8



Section 6: Function rules from equations (KA link)

1. For a given input value r, the function h outputs a value q to satisfy the equation $q - 5 = 3(r - 1)$. Write a formula for $h(r)$ in terms of r.

$q - 5 = 3(r - 1)$

$q = 3r - 3 + 5$

$q = 3r + 2$

$h(r) = 3r + 2$

2. For a given input value x, the function f outputs a value y to satisfy the equation $y + 7 = 5(x - 8)$. Write a formula for $f(x)$ in terms of x.

$y + 7 = 5(x - 8)$

$y = 5x - 40 - 7$

$y = 5x - 47$

$f(x) = 5x - 47$

3. [Challenge] For a given input value x, the function g outputs a value y to satisfy the equation $2y - 4x = 6(x - 2)$. Write a formula for $g(x)$ in terms of x.

$2y - 4x = 6(x - 2)$
$2y = 6x - 12 + 4x$
$2y = 10x - 12$
$y = 5x - 6$
$g(x) = 5x - 6$

Section 7: Function notation word problems (KA link)

1. Maria is a Lyft driver. $L(n)$ models how much she makes, in dollars, for her n^{th}drive on a certain day. What does the statement $L(6) = G$ mean?

- **a.** Maria makes \$6 for her G^{th} drive.
- **b.** The amount Maria makes for her G^{th} drive and 6^{th} are equal.
- **c.** Maria makes G dollars on her 6^{th} drive.

2. A plane takes off from San Diego Airport to Boston. $H(s)$ models the height of the aircraft (in miles) after flying s miles. What does the statement $H(.5) = T$ mean?

- **a.** After flying for half a mile, the plane was at a height of T miles.
- **b.** The height of the plane after half a mile is the same as the height after T miles.
- **c.** After flying for T miles, the plane was at a height of half a mile.