



## Unit 5: Lesson 04 More practice with functions

Function notation does not necessarily have to use the letter  $f$ . A function could be called by another letter: for example,  $g(x)$ .

In examples 1 & 2, use the functions  $f(x) = 3x + 2$  and  $g(x) = x^2 + 1$ .

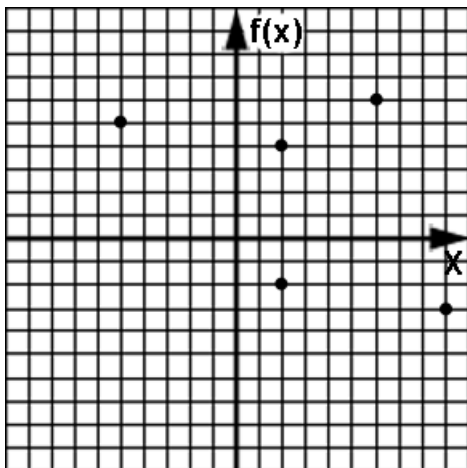
**Example 1:** Find  $f(-9) + g(3)$

$$\begin{aligned} f(-9) + g(3) &= 3(-9) + 2 + (3)^2 + 1 \\ &= -27 + 2 + 9 + 1 \\ &= -25 + 10 = \boxed{-15} \end{aligned}$$

**Example 2:** Evaluate  $2f(4) + 5g(1)$

$$\begin{aligned} 2[f(4)] + 5[g(1)] &= 2[3 \cdot 4 + 2] + 5[1^2 + 1] \\ &= 2[12 + 2] + 5[1 + 1] \\ &= 2[14] + 5[2] \\ &= 28 + 10 = \boxed{38} \end{aligned}$$

**Example 3:** Use the relation given by  $f(x)$  to answer these questions.



**List the ordered pairs in this relation.**

$$(-5, 5), (2, 4), (2, -2), (6, 6), (9, -3)$$

What is the domain?

$$\mathcal{D}: \{-5, 2, 6, 9\}$$

What is the range?

$$\mathcal{R}: \{5, 4, -2, 6, -3\}$$

Is it a function? If not, what points could be removed to make it a function?

*No. Remove either (2, 4) or (2, -2)*

$f(-5) = ?$	$f(6) = ?$	$f(9) = ?$	$f(1) = ?$
$5$	$6$	$-3$	<i>undefined</i>

**Assignment:** Use  $p(x) = 4x - 7$  and  $q(x) = -x^2 + 2$  in problems 1-4.

1. Find  $p(2) - q(3)$ .

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2. Find  $3q(1) + p(5)$

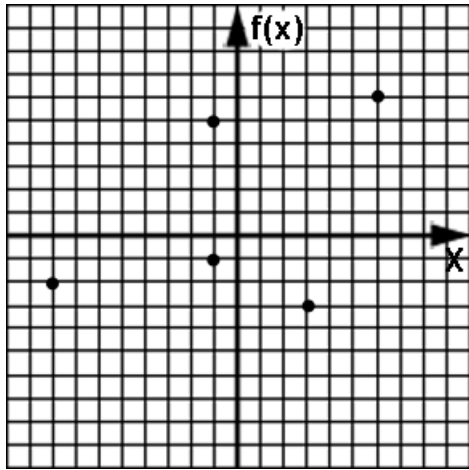
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3. Evaluate  $p(-6) [ q(1) ]$ .

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4. Evaluate  $q(5)/p(-11)$

5. Use the relation given by  $f(x)$  to answer these questions.



List the ordered pairs in this relation.

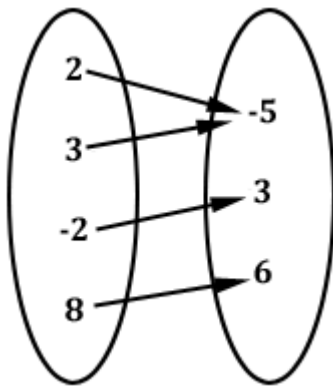
What is the domain?

What is the range?

Is it a function? If not, what points could be removed to make it a function?

$$f(-8) = ? \quad f(3) = ? \quad f(2) = ? \quad f(6) = ?$$

6. Use the relation given by this mapping,  $h(x)$  to answer these questions.



List the ordered pairs in this relation.

What is the domain?

What is the range?

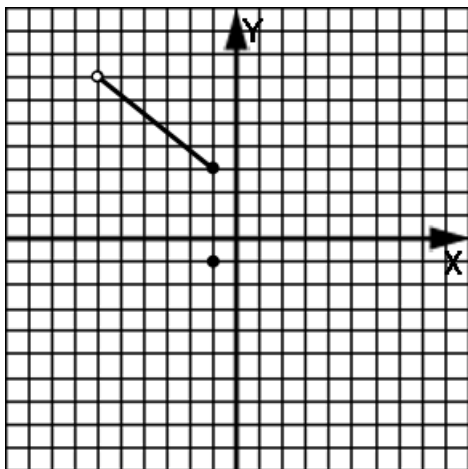
Is it a function? If not, what points could be removed to make it a function?

$$h(3) = ? \quad h(-2) = ? \quad h(1) = ? \quad h(2) = ?$$

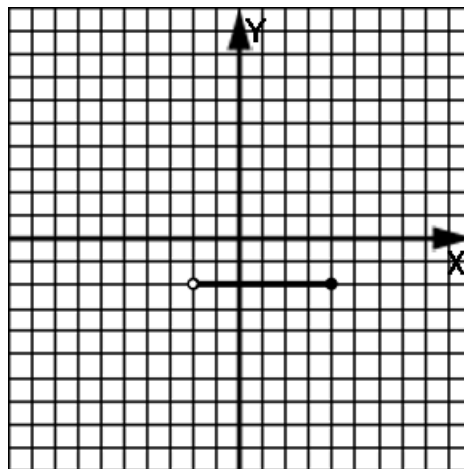
7. Find the range for function  $t(x) = 4x - x^2$  if the domain is  $\{1, 2, 3\}$ .

In problems 8-11, state the domain and range of the given relation. Also state if the relation is a function.

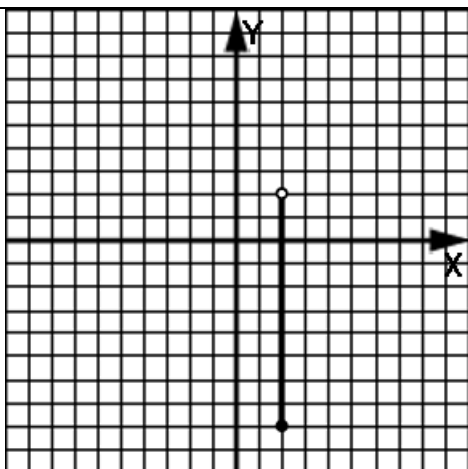
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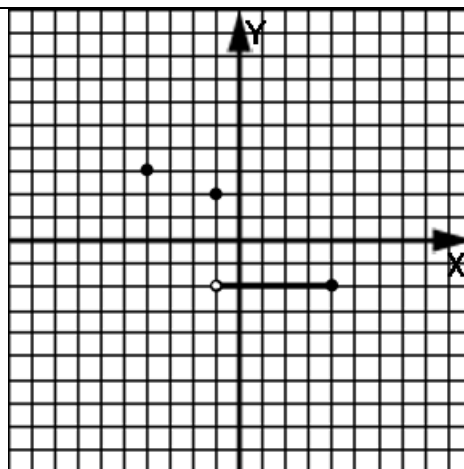
9.



10.



11.



12. Evaluate  $g(x)$  at  $x = -7$  where  $g(x) = 6x^2 + x - 2$ .

\*13. Evaluate  $h(x)$  at  $g(2)$  when  $g(x) = 3x^2$  and  $h(x) = 11x + 9$ .