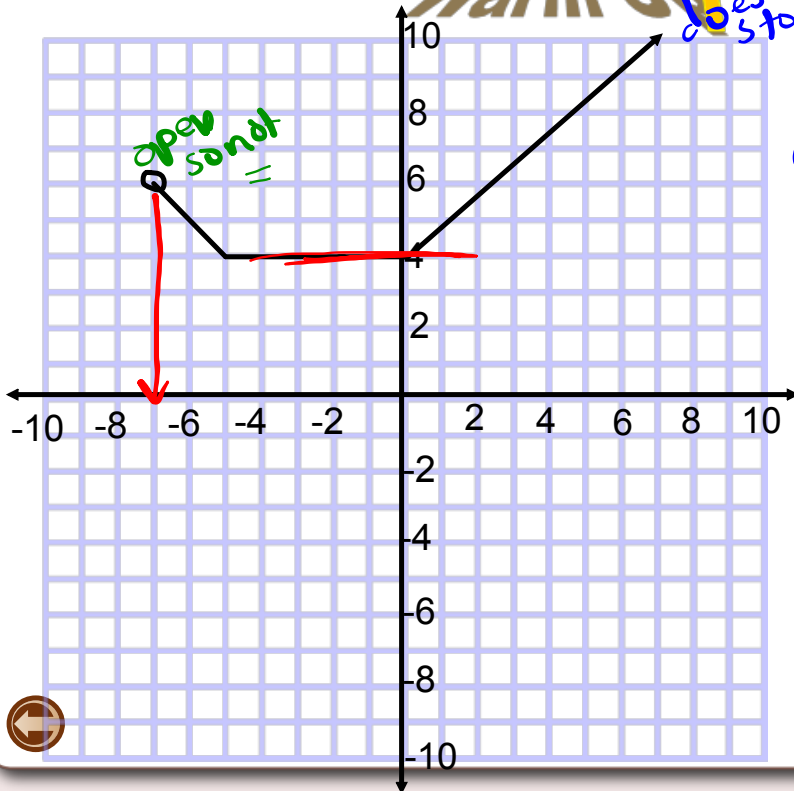
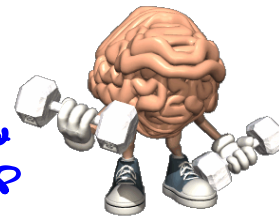


# Warm Up



state Domain Range,  
 connected  
 continuous/discrete,  
 linear/nonlinear

more than one straight line

$$D \{ x \mid -7 < x, x \in \mathbb{R} \}$$

$$R \{ y \mid -4 \leq y, y \in \mathbb{R} \}$$

a) Evaluate  $f(-2)$

↑  
*x value*

b)  $f(x) = 79$

Quiz Time if no questions fro HW

Explain Next page before  
going onto quiz

Page 272:

Questions: 14 to 19

After the Quiz Work on worksheet

$$f(x) = \frac{x + 4}{2}$$

$$\frac{5}{9}(x)$$

# CHECKPOINT 1

## Connections

Here is a Frayer model for a function.

Function

<p><b>Definition</b></p> <p>A function is a relation where each element in the first set is associated with exactly one element in the second set.</p>	<p><b>Essential Characteristics</b></p> <p>The domain is the set of first elements in the ordered pairs. These are the values of the independent variable.</p> <p>The range is the set of second elements in the ordered pairs. These are the values of the dependent variable.</p>																				
<p><b>Example</b></p> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 10px;"><i>x</i></th> <th style="padding: 2px 10px;"><i>y</i></th> </tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">0</td><td style="padding: 2px 10px;">4</td></tr> <tr><td style="padding: 2px 10px;">1</td><td style="padding: 2px 10px;">5</td></tr> <tr><td style="padding: 2px 10px;">2</td><td style="padding: 2px 10px;">6</td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;">7</td></tr> </tbody> </table> <p style="margin: 5px 0;">{(0, 4), (1, 5), (2, 6), (3, 7)}</p> <div style="margin: 5px 0;"> <p style="text-align: center;">plus 4 equals →</p> </div>	<i>x</i>	<i>y</i>	0	4	1	5	2	6	3	7	<p><b>Non-examples</b></p> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 10px;">Number of Faces</th> <th style="padding: 2px 10px;">Object</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;">triangular pyramid</td></tr> <tr><td style="padding: 2px 10px;">5</td><td style="padding: 2px 10px;">square pyramid</td></tr> <tr><td style="padding: 2px 10px;">6</td><td style="padding: 2px 10px;">cube</td></tr> <tr><td style="padding: 2px 10px;">6</td><td style="padding: 2px 10px;">rectangular prism</td></tr> </tbody> </table> <p style="margin: 5px 0;">{(4, triangular pyramid), (5, square pyramid), (6, cube), (6, rectangular prism)}</p> <div style="margin: 5px 0;"> <p style="text-align: center;">is the number of faces on a →</p> </div>	Number of Faces	Object	4	triangular pyramid	5	square pyramid	6	cube	6	rectangular prism
<i>x</i>	<i>y</i>																				
0	4																				
1	5																				
2	6																				
3	7																				
Number of Faces	Object																				
4	triangular pyramid																				
5	square pyramid																				
6	cube																				
6	rectangular prism																				

## Concept Development

■ **In Lesson 5.1**

- You described a relation in words and represented it using: a set of ordered pairs, an arrow diagram, a table, and a bar graph.

■ **In Lesson 5.2**

- You identified a function by checking to see whether its ordered pairs had different first elements.
- You listed the elements of the domain and of the range.
- You related the elements of the domain to the independent variable and the elements of the range to the dependent variable.
- You described functions in words, and algebraically using function notation.

**Assess Your Understanding**

**5.1**

1. Copy and complete this table for different representations of relations.

	Description in Words	Set of Ordered Pairs	Arrow Diagram	Table or Graph										
a)		{(skin, drum), (skin, kayak), (bark, basket), (stone, inukshuk), (stone, carving)}												
b)				<table border="1"> <thead> <tr> <th>Number</th> <th>Number of Factors</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>2</td> </tr> <tr> <td>4</td> <td>3</td> </tr> </tbody> </table>	Number	Number of Factors	1	1	2	2	3	2	4	3
Number	Number of Factors													
1	1													
2	2													
3	2													
4	3													
c)			<p>is usually coloured</p>											
d)	For the numbers 1 to 4, the first number in an ordered pair is greater than the second number.													

**5.2**

2.
  - a) Which relations in question 1 are functions? Justify your answers.
  - b) State the domain and range of each function.
  
3.
  - a) Think about two sets of numbers and an association.
    - i) Create a relation that is not a function.
    - ii) Create a function.
  - b) Represent each relation in part a in different ways.
  
4. The temperature,  $T$  degrees Celsius, of Earth's interior is a function of the distance,  $d$  kilometres, below the surface:  $T(d) = 10d + 20$ 
  - a) Identify the dependent and independent variables.
  - b) Write this function as an equation in two variables.
  - c) Determine the value of  $T(5)$ . Describe what this number represents.
  - d) Determine the value of  $d$  when  $T(d) = 50$ . Describe what this number represents.





## Work sheet

$$m(x) = 3x^2 - 4$$

$$t(x) = \frac{1}{2}x + 2(x-3)$$

$$a(x) = \frac{5x-4}{2}$$

$$h(x) = (2x-3) + (4x-1)$$

a)  $m(2) + m(7)$       b)  $t(a(4))$       c)  $m(a(t(h(1))))$

d)  $h(t(a(m(1))))$       e)  $t(10)$       f)  $a(-8)$

g)  $m(7) - t(-4)$

h



## Attachments

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FunctionNotationWorksheet.pdf