

Unit 1: Functions - Assessment

Name Exemplar PER _____ DATE _____

FIFA1	FIFA2	AREID10	FIFC7	FIFB5

Computation

4	3	2	1
Response has no recall errors, <i>minimal</i> procedural errors* and no conceptual errors**	Response has no recall errors, <i>minimal</i> procedural errors and <i>minimal</i> conceptual errors	Response has no recall errors, but has several procedural errors <u>OR</u> several conceptual errors	Recall errors exist <u>OR</u> Steps taken are not related to problem <u>OR</u> Response left blank

Written Responses

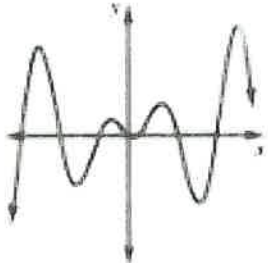
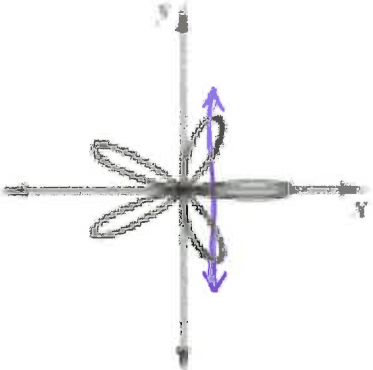
4	3	2	1
Response is written in a complete sentence and uses appropriate academic vocab	Response is written in a complete sentence, and minimal errors exist in use of academic vocab	Response is not written in a complete sentence <u>OR</u> no academic vocab	Concept of response is not related to problem <u>OR</u> Response is left blank

*Procedural errors are mistakes made in the math

**Conceptual errors are mistakes made in the steps one take

BOX YOUR ANSWERS!!!

1. **(FIFA1)** Three relations are shown below. Determine which of these relations are functions. Justify why it is a function and why it is not a function in the space provide.

<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>8</td> </tr> <tr> <td>7</td> <td>8</td> </tr> <tr> <td>45</td> <td>7</td> </tr> <tr> <td>52</td> <td>-6</td> </tr> <tr> <td>7</td> <td>9</td> </tr> <tr> <td>13</td> <td>0</td> </tr> </tbody> </table>	x	y	4	8	7	8	45	7	52	-6	7	9	13	0	<p>This is not a function since the input $x=7$ has two outputs, 8 & 9. To be a function, each input must have only one <u>output</u></p>
x	y														
4	8														
7	8														
45	7														
52	-6														
7	9														
13	0														
	<p>This is a function since each input has only one output</p>														
	<p>This is not a function since several inputs have two outputs. This is seen with the Vertical Line Test.</p>														

2. (FIFA2) Calculate $f(4)$ for each function listed below. Show your work and box your answers.

a. $f(x) = -(x - 7) + 3$

b. $f(x) = \frac{\sqrt{x+12}}{4}$


c. $f(x) = 4^x - 3$

a.) $f(4) = -(4-7)+3$

$f(4) = -(-3)+3$

$f(4) = 3+3$

$f(4) = 6$

b.) $f(4) = \frac{\sqrt{4+12}}{4}$ 

$f(4) = \frac{\sqrt{16}}{4}$

$f(4) = \frac{4}{4}$

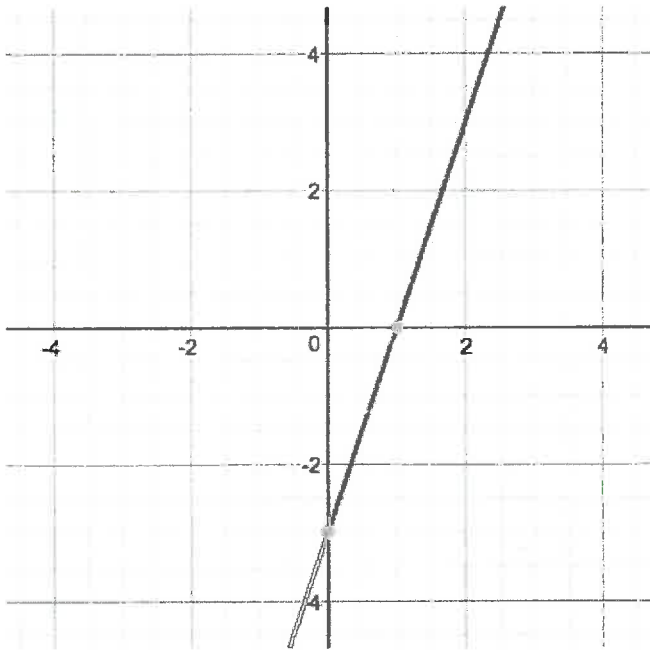
$f(4) = 1$

c.) $f(4) = 4^4 - 3$

$f(4) = 256 - 3$

$f(4) = 253$

3. (AREID10) Which choice is the correct equation for the line graphed below? Justify why you chose the graph in the space below.



A. $y = 3x + 3$ @ $x = 2, y = 8$

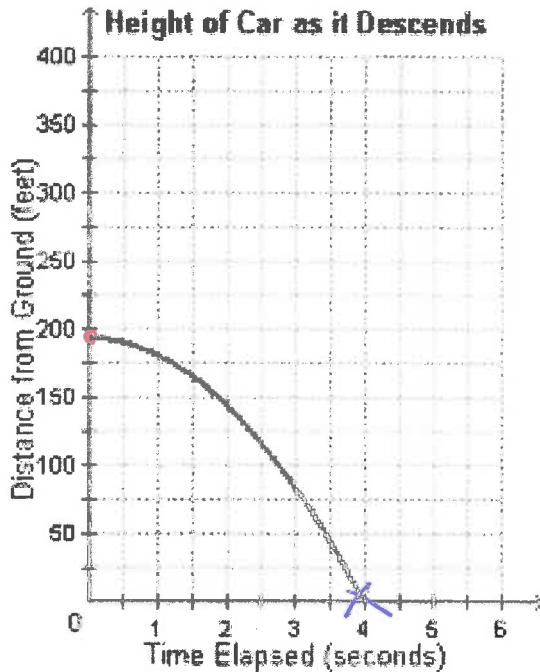
B. $y = -3x - 2$ @ $x = 2, y = -8$

C. $y = 3x - 3$ @ $x = 2, y = 3$

D. $y = -3x - 3$ @ $x = 2, y = -9$

(C) $y = 3x - 3$ matches the graph since when I evaluate each function at $x = 2$, only (C) yields $y = 3$ and $(2, 3)$ is a point on the graph.

4. (FIFC7) Gianni is in a car at the top of a roller coaster ride. The distance, d , in feet, of the car from the ground as the car descends is determined by the equation $d = 192 - 12t^2$, where t is the number of seconds it takes the car to travel down to each point of the ride.



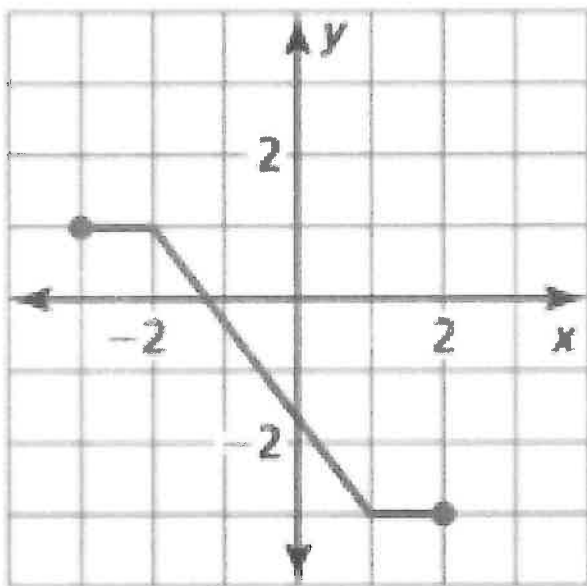
a. What is the car's greatest height, according to the graph?

The car's greatest height is 190 ft

b. How many seconds will it take Gianni to reach the ground?

Gianni will reach the ground after ~~4 seconds~~
4 seconds.

5. (FIFB5) What is the domain and range of the function shown below?
Box your answers.



Domain: $-3 \leq x \leq 2$

Range: $-3 \leq y \leq 1$