

2.1 Practice – Function Intro

Name: _____

Pre-Calculus

For 1-4, identify if the relationship represents a function. If it does not, clearly explain why not.																											
<p>1) Independent Dependent</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 5px;">-2</td><td style="padding: 5px;">5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">0</td><td style="padding: 5px;">5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">1</td><td style="padding: 5px;">5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">2</td><td style="padding: 5px;">5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">6</td><td style="padding: 5px;">5</td></tr> </table> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Function</p>	-2	5	0	5	1	5	2	5	6	5	<p>2) Domain Range</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 5px;">3</td><td style="padding: 5px; color: red;">-1</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">2</td><td style="padding: 5px;">-5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">5</td><td style="padding: 5px;">-5</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">4</td><td style="padding: 5px;">-6</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">3</td><td style="padding: 5px; color: red;">-3</td></tr> </table> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Not a function because 3 is paired with 2 numbers.</p>	3	-1	2	-5	5	-5	4	-6	3	-3	<p>3) The ordered pairs: (-17, 0), (1, -4), (-2, 5), (3, 4), and (1, 6).</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Not a function because 1 is paired with 2 numbers.</p>	<p>4) $f(-5) = 0$, $f(-1) = 4$, $f(0) = -5$, $f(4) = 2$, and $f(-1) = 4$.</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Function</p>				
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For 5-8, identify the independent (input) variable and the dependent (output) variable.																											
<p>5) While Trick-or-Treating, the amount of candy collected depends on the number of doors knocked.</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Indy = # of doors knocked Depend = Amount of Candy</p>	<p>6) The amount of candy eaten determines the number of cavities the following year.</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Indy = Candy eaten Depend = # of cavities</p>																										
<p>7) The ability to draw quality art is a function of the hours spent drawing.</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Indy = hours drawing Depend = Quality of drawing</p>	<p>8) The month of the year helps determine the average high temperature.</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">Indy = month Depend = Average high temp</p>																										
For 9-11, write a sentence explaining the meaning of the specific numbers given for each scenario.																											
<p>9) The input of a function C is time of day since midnight. The output is the number of cars in the parking lot. What does $C(9) = 115$ mean?</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">At 9 AM there are 115 cars in the parking lot.</p>	<p>10) The input of a function W is height (in centimeters). The output is weight (in pounds). What does $W(183) = 212$ mean?</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">If you inflate the heavy bag to a height of 183 inches, it will weigh 212 pounds.</p>	<p>11) The input of a function I is the number of lame jokes Mr. Kelly tells in a day. The output is the irritability level of his students (measured in Kellygrams). What does $I(8) = 78$ mean?</p> <p style="text-align: center; color: red; font-size: 1.2em; margin-top: 20px;">If Mr. Kelly tells 8 lame jokes in a day, his students' irritability will be 78 Kellygrams.</p>																									
For 12-14, use a graphing calculator to complete the table. Use the method indicated.																											
<p>12) $f(x) = 0.7x^2 - 4.9x + 501$ Use Table Ask</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr><th style="padding: 5px;">x</th><th style="padding: 5px;">$f(x)$</th></tr> </thead> <tbody> <tr><td style="padding: 5px;">1.8</td><td style="padding: 5px; color: red;">494.448</td></tr> <tr><td style="padding: 5px;">32.5</td><td style="padding: 5px; color: red;">1081.125</td></tr> <tr><td style="padding: 5px;">-32.5</td><td style="padding: 5px; color: red;">1399.625</td></tr> </tbody> </table>	x	$f(x)$	1.8	494.448	32.5	1081.125	-32.5	1399.625	<p>13) $g(x) = \frac{x^2+x}{x-4}$ Use Trace</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr><th style="padding: 5px;">x</th><th style="padding: 5px;">$g(x)$</th></tr> </thead> <tbody> <tr><td style="padding: 5px;">-5</td><td style="padding: 5px; color: red;">-2.222</td></tr> <tr><td style="padding: 5px;">5.1</td><td style="padding: 5px; color: red;">28.282</td></tr> <tr><td style="padding: 5px;">21</td><td style="padding: 5px; color: red;">27.176</td></tr> </tbody> </table>	x	$g(x)$	-5	-2.222	5.1	28.282	21	27.176	<p>14) $h(x) = 5034x^5 + 35.2x - 8005$ Use Function Notation</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr><th style="padding: 5px;">x</th><th style="padding: 5px;">$h(x)$</th></tr> </thead> <tbody> <tr><td style="padding: 5px;">-0.8</td><td style="padding: 5px; color: red;">-9682.701</td></tr> <tr><td style="padding: 5px;">1.5</td><td style="padding: 5px; color: red;">30274.738</td></tr> <tr><td style="padding: 5px;">0.4</td><td style="padding: 5px; color: red;">-7939.372</td></tr> </tbody> </table>		x	$h(x)$	-0.8	-9682.701	1.5	30274.738	0.4	-7939.372
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For 15-18, use the graph given for each problem to determine the values. If the value is between two integers, approximate to one decimal place.

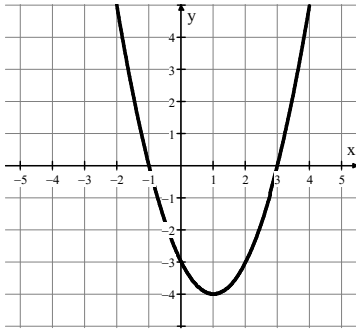
15)

a. $f(2) = -3$

b. $f(-2) = 5$

c. If $f(x) = -4$, then $x = 1$

d. If $f(x) = 0$, then the possible value(s) of x are: $-1, 3$



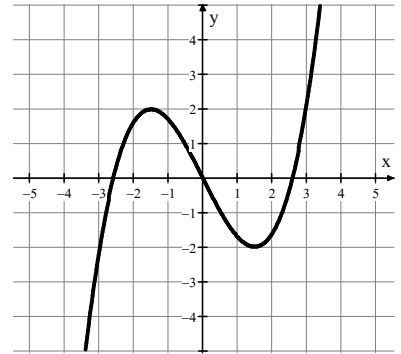
16)

a. $f(-3) = -2$

b. $f(1.5) = -2$

c. If $f(x) = 3$, then $x = 3.2$

d. If $f(x) = 0$, then the possible value(s) of x are: $-2.6, 0, 2.6$



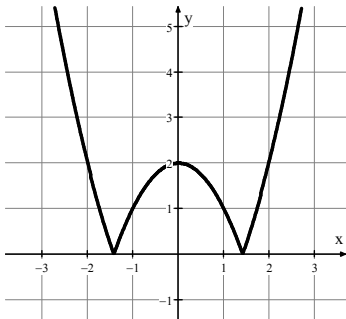
17)

a. $f(0) = 2$

b. $f(-1) = 1$

c. If $f(x) = 4$, then $x = \pm 2.4$

d. If $f(x) = 0$, then the possible value(s) of x are: ± 1.5



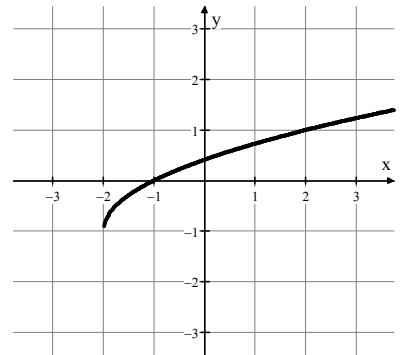
18)

a. $f(2) = 1$

b. $f(3) = 1.3$

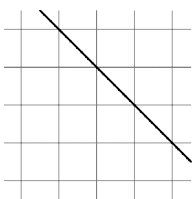
c. If $f(x) = -1$, then $x = \text{DNE or } -2$

d. If $f(x) = 0$, then the possible value(s) of x are: -1



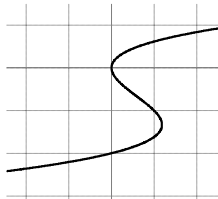
For 19-23, state whether or not each graph represents a function.

19)



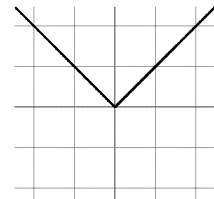
Function

20)



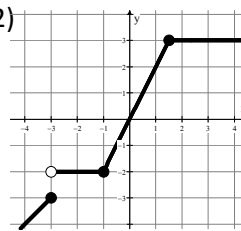
Not A Function

21)



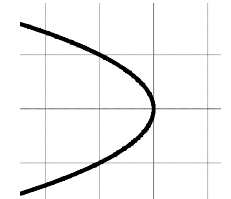
Function

22)



Function

23)



Not A Function

24) Find the output for $w(x) = 3x^2 - x + 2$

a. $w(\Delta) = 3(\Delta)^2 - (\Delta) + 2$

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b. $w(x+3) = 3(x+3)^2 - (x+3) + 2$

$= 3(x^2 + 6x + 9) - x - 3 + 2$

$= 3x^2 + 18x + 27 - x - 1$

$w(x+3) = 3x^2 + 17x + 26$

c. $w(x+h) = 3(x+h)^2 - (x+h) + 2$

$= 3(x^2 + 2hx + h^2) - x - h + 2$

$w(x+h) = 3x^2 + 6hx + 3h^2 - x - h + 2$