Math 14 Review for Exam 2: sections 016 – 029

		Answers
Section 016		
1	$3\|5-2x\|-1=7$	$x=\frac{7}{6};\ x=\frac{23}{6}$
2	$\|2x-1\|=\|5x+7\|$	$x=-\frac{8}{3};\ x=-\frac{6}{7}$
3	$\|3x-5\|=x+2$	$x=\frac{7}{2};\ x=\frac{3}{4}$
4	$\|2x+1\|+1<14$	$-7<x<6$
5	$\|x+5\|>15$	$x>10\ OR\ x<-20$
6	$\left\|\frac{x}{2}-\frac{1}{3}\right\|>\frac{2}{3}$	$x>2\ OR\ x<-\frac{2}{3}$
Sections 021 - 029		
1	Find the distance between $(-2,-4) and\ (1,-5)$.	$\sqrt{10}$
2	Find the midpoint between points $(3,-5) and\ (2,7)$.	$(\frac{5}{2},1)$
3	Find the x and y intercepts of $y=x^2-5x-14$.	$(7,0)\ (-2,0),(0,-14)$
4	Test for symmetries: $y=\frac{2x-x^3}{x+x^5}$	y-axis
5	Find the center and radius: $x^2+y^2-10x+2y+1=0$	$(5,-1), r=5$
6	Find the equation of the line through $(-2,4) and\ (-1,7)$.	$y=3x+10$
7	Find the equation of the line parallel to the y-axis and through $(2,5)$.	$x=2$
8	Find the equation of the line perpendicular to the x-axis and through $(7,8)$.	$x=7$
9	Find the x and y intercepts of $2x+3y=7$.	$\left(\frac{7}{2},0\right),\left(0,\frac{7}{3}\right)$
10	Find the slope of the line that is parallel to $3x-2y=7$.	$m=\frac{3}{2}$
11	Find the slope of the line that is perpendicular to $7x+5y=2$.	$m=\frac{5}{7}$
12	Does $y^2+2x=7$ define y as a function of x?	No
13	For $f(x)=7-2x,$ find $f(3x-2)$.	$11-6x$
14	Find the domain of A) $f(x)=\frac{x-3}{x^2-5x-14}$ B) $f(x)=\frac{x-2}{\sqrt{x-5}}$	$A)\ x\neq 7,-2\ B) x>5$
15	Is point $(-3,4)$ on the graph of $x^2+y^2=25$?	Yes
16	Find all the x and y intercepts of $f(x)=x^3-9x$.	$x=0,3,-3; y=0$
17	Find all x such that $(x,6)$ is a point on the graph of $f(x)=x^2+x$.	$x=-3,2$
18	Is the function even, odd or neither? A) $f(x)=\frac{x^3+5x}{x-x^5}$ B) $f(x)=\frac{x^2+5}{x^3-x}$	$A)\ even; B) odd$
19	Find the average rate of change of $f(x)=3-x^2$ from $x=0\ to\ x=2$.	-2
20	For $f(x)=2x-x^2,$ find $\frac{f(3+h)-f(3)}{h}$ and simplify.	$-y-h$
21	For $f(x)=\begin{cases}3, & x\leq 2\\ -x+5, & x>2\end{cases}$ Find $f(-10), f(2), f(7)$. Draw the graph.	$f(-10)=3; f(2)=3; f(7)=-2$

22	Graph $f(x) = (x+1)^2 - 4$. Find the x and y intercepts.	$x = 1, -3; y = -3; see\ video\ for\ graph$
23	What equation is the result of the following transformations of $y = \sqrt{x}$? • Reflect through y-axis • Shift left 3 • Shift up 10 • Reflect through the x-axis	$-\sqrt{-x-3} - 10$
24	Show that the following transformations of $y = \sqrt{x}$ result in $y = -\sqrt{-x+3} - 10$. • Reflect through y-axis • Shift right 3 • Shift up 10 • Reflect through x-axis	$see\ video$
25	For $f(x) = 3 - 2x$ and $f(x) = x^2 + 2$ find $f\big(g(x)\big)$ and $g\big(f(x)\big)$.	$f\big(g(x)\big) = -1 - 2x^2$ $g\big(f(x)\big) = 11 - 12x + 4x^2$
26	A function is one-to-one if _____.	Every x corresponds to one y and every y corresponds to one x
27	A function has an inverse if it is _____.	One-to-one
28	Assume $f(x)$ is one-to-one, and $f(2) = 3$, then $f^{-1}(3) =$__ and $f\big(f^{-1}(3)\big) =$ ____.	$f^{-1}(3) = 2; f\big(f^{-1}(3)\big) = 3$
29	If $f(x) = 7 - 3x,$ then $f^{-1}(x) =$_____.	$f^{-1}(x) = \dfrac{x-7}{-3}$
30	If $f(x) = \frac{1}{x-5,}$ then $f^{-1}(x) =$_____.	$f^{-1}(x) = \dfrac{5x+1}{x}$