Honors Algebra 2: 2ndst Semester Final Exam Review Answer Key

#	a	b	c
1.	Reflect across y-axis, right 8 $D:\{x\|x\le 8\}$ $R:\{y\|y\ge 0\}$	Reflect across x-axis, up 1 $D:\{x\|x\ge 0\}$ $R:\{y\|y\le 1\}$	
2.	see teacher	$f(x)=\begin{cases}6, & \text{if } 0<x\le 8 \\ 6+1.5(x-8) & \text{if } 8<x\le 48\end{cases}$	
3.	$f(x)=\begin{cases}-2x+8, & \text{if } x\le 4 \\ 0.5x & \text{if } x>4\end{cases}$		
4.	a. Graph 2	b. W = slow left-right Z = slow right-left X = still in middle of room	T = quick left-right Y = quick right-left Remaining = V = standing still on the right side of the room
5.	a. $x^2-37x+6$	b. $-x+36,\ x\neq 0$	c. $\dfrac{-1}{x^3-36x^2},\ x\neq 0,36$
	d. $\dfrac{x^2-6x-1}{x},\ x\neq 0$	e. $-x^2+36x+6$	f. $x^2+24x-180$
6.	$y=\dfrac{5-8x}{2x}$	$y=3\sqrt{x}-6$	$y=(x-3)^2+5$
7.	$\dfrac{x^2}{4}+\dfrac{y^2}{25}=1$	$\dfrac{y^2}{4}-\dfrac{x^2}{9}=1$	
8.	$(x+5)^2+(y-4)^2=9$	$x^2+y^2=52$	
9.	a. circle	b. hyperbola	c. v. ellipse w center (3, -2) vertices(3, 6) & (3, -10), covertices(-4, -2) & (10,-2) foci (3, -2±√15)
	d. h. hyperbola w center (3, -6) vertices(1, -6) & (5, -6), covertices(3, 1) & (3,-13) foci (3±√53, -6) asymp: y + 6 = ±7/2(x − 3)	e. circle w center(-8, 5) & radius = 11	f. h. hyperbola w center (0, 9) vertices(±8, 9) covertices(0, 11) & (0, 7), foci (±2√17, 9) asymp: y = ±1/4 x + 9

10.	a. Center (0,0) Focus (0,-10) Directrix: y = 10	b. Center (0,0) Focus (1.25,0) Directrix: x = − 1.25	c. Center (0,0) Focus (-6,0) Directrix: x = 6	d. Center (2,0) Focus (2,2) Directrix: y = − 2

11.	$\dfrac{x^2}{36}-\dfrac{y^2}{9}=1$	$\dfrac{(y+3)^2}{25}-\dfrac{x^2}{64}=1$	

12.	$x - 1 = -\dfrac{1}{8} y^2$	$x = \dfrac{1}{40} y^2$	$y - 6 = -\dfrac{1}{32}(x - 4)^2$
13.	$\dfrac{x^2}{36} + \dfrac{y^2}{9} = 1$	$\dfrac{(x-4)^2}{16} - \dfrac{(y-4)^2}{12} = 1$	
14.	Center (-1, 17), radius = $\sqrt{52}$ $(x+1)^2 + (y - 17)^2 = 52$	$y = -\dfrac{3}{4} x + \dfrac{43}{4}$	
15.	$a_n = 10(2^n)$ or $a_n = 20(2)^{n-1}$	$a_n = 3n + 3$	$a_n = \dfrac{1}{2n} \cdot (-1)^n$
16.	$\displaystyle\sum_{n=1}^{5}(-10)^{n-1}$	$\displaystyle\sum_{n=1}^{5}\dfrac{1}{5n}$	
17.	6, 0, 12, -12, 36	4, 3, 2.5, 2.25, 2.125	
18.	-990	348	
19.	$a_n = 6.66 \cdot (.94)^n$ or $a_n = 6.26 \cdot (.94)^{n-1}$	\$4.32	
20.	$\dfrac{2\pi}{3}$	$\dfrac{5\pi}{4}$	
21.	$-45°,\ -\dfrac{\pi}{4}$	$120°,\ \dfrac{2\pi}{3}$	$-30°,\ -\dfrac{\pi}{6}$
22.	$-200°$ and $520°$	$100°$ and $-620°$	$\dfrac{19\pi}{8}$ and $\dfrac{-13\pi}{8}$
23.	$4\sqrt{3};\ 8\sqrt{3}$	$3\sqrt{10}$	
24.	$\left(\dfrac{1}{2}, \dfrac{\sqrt{3}}{2}\right)$	$\left(\dfrac{\sqrt{2}}{2}, \dfrac{-\sqrt{2}}{2}\right)$	$\left(\dfrac{-\sqrt{2}}{2}, \dfrac{\sqrt{2}}{2}\right)$
25.	Undefined	$-\dfrac{\sqrt{2}}{2}$	$\dfrac{\sqrt{3}}{2}$
26.	$2 ;\ 8\pi$	No amp.; $\dfrac{1}{2}$	
27.	$g(x) = \cos x + \dfrac{\pi}{2}$		
28.	$x = \pi + 2\pi n$		
29.	Vertical stretch by a factor of 2; right $\dfrac{\pi}{4}$, down 1	Horizontal stretch by a factor of 2, left $\dfrac{\pi}{6}$, up 1	
30.	See highlighted box pg 1008		
31.	$2\cos\theta$	$\cos\theta$	
32.	20	60	120
33.	175,760,000	78,624,000	
34.	56		

35.	Mean = 11, min = 0, Q1 = 2, median = 6, Q3 = 16, max = 36, IQR = 14, variance = 151.67, standard deviation = 12.32		
36.	a. systematic b. stratified c. self-selected (most bias) d. simple random (least bias)		
37.	Check with teacher/ see supp 11.2 - 4 handouts online		
38.	5.2		
39.	840		
40.	$|z| = 1.88$, not enough evidence to reject claim since $|z| < 1.96$		