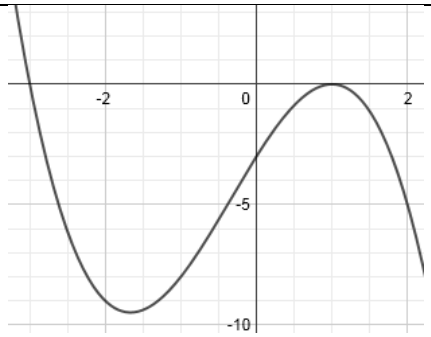
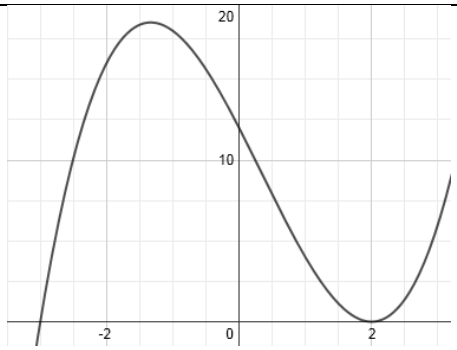
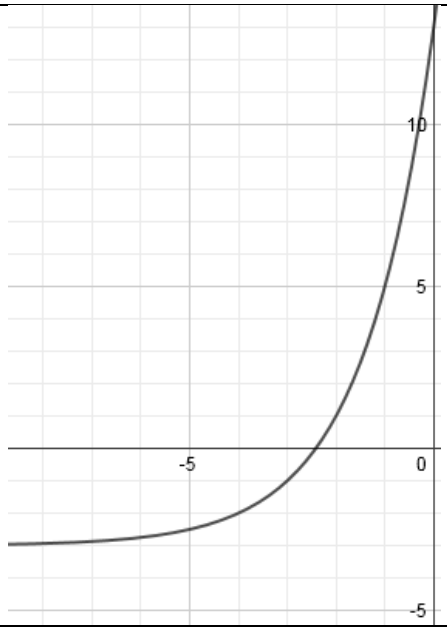
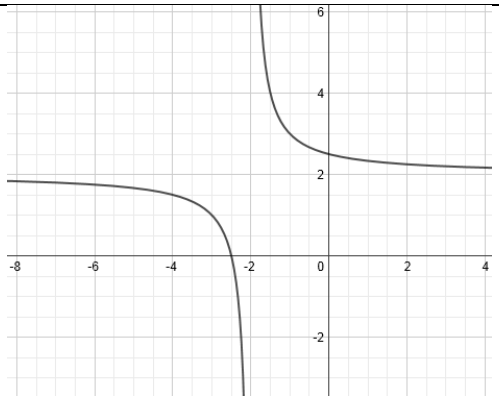
Honors Algebra 2: 1st Semester Final Exam Review Answer Key

#	a	b	c
1.	$\frac{1}{3}$	$\frac{2z^{\frac{1}{8}}}{x^{\frac{1}{3}}y^{\frac{5}{4}}}$	
2.	$\sqrt{-1}$	-1	≈ 2.718
3.	$4-6i$	$-7-9i$	
4.	$69-38i$	$\frac{-1+13i}{5}$	
5.	$-2\pm 4i$	$\frac{1}{2}\pm\frac{i\sqrt{5}}{2}$	
6.	$g(x)=-\left(\frac{1}{4}x\right)^2-3$	$g(x)=3(x+2)^2$	
7.	-152	2	
8.	-4	x = -3	
9.	-5 and $\frac{1}{3}$	$\pm\frac{10}{3}$	0 and $\frac{-2}{3}$
10.	(-2, 0) and (-8, 0)	x = - 5	
11.	None	(0, 11)	2
12.	$f(x)=-3(x+1)(x-3)$	$f(x)=-3(x-1)^2+12$	
13.	x = .5 ft or 6 in		
14.	$(9x^2+4)(3x+2)(3x-2)$	$(3x+4)(9x^2-12x+16)$	$(x^2-3)(2x-5)$
15.	$x^2+4x+2+\frac{-5}{x-2}$; remainder was -5	x^2-x-3; remainder was 0.	
16.	$as\ x\to-\infty,\ f(x)\to+\infty\ and\ as\ x\to+\infty,\ f(x)\to-\infty$ (rise/fall)	$as\ x\to-\infty,\ f(x)\to+\infty\ and\ as\ x\to+\infty,\ f(x)\to+\infty$ (rise/rise)	

17.			
18.	$8x^3+36x^2+54x+27$	$x^5-10x^4+40x^3-80x^2+80x-32$	
19.	reflected over x-axis, translated 1 unit left	horizontal stretch by a factor of 4, translated 2 units up	reflected over y-axis, translated 4 units right
20.	$a^2 - 13a + 39$	$z^2 + 15z + 53$	
21.			
22.	x = -1	x = - 4	
23.	5/3	$\frac{6}{x-2}$	
24.	$\frac{-1}{x^2-4}$	$\frac{2x+11}{x^2+7x+12}$	
25.	$\frac{x+6}{x-6}$	$\frac{x+5}{x-5}$	
26.	$f^{-1}(x) = -\left(\frac{x+16}{3}\right)$	$f^{-1}(x) = \log_2(x-9)$	$f^{-1}(x) = \left(\frac{x}{5}\right)-12$
27.	Various: ex → $y = 22^x + 3$	Various: ex → $y = \frac{2x(x-4)}{(x+1)(x-4)}$	Various: ex → $y = \frac{1}{x} - 5$ or $y = \frac{-5x}{(x+1)}$

28.	$y = 1000(.87)^x$	$y = 500(1 + \frac{.05}{12})^{12t}$	$y = 16(2)^x$
29.	$y = 1500(e)^{.035t}$	$y = 1100(e)^{.0525t}$	~17.7 years
30.	Slowest: $f(x) = \sqrt{5x}$ →	$f(x) = 2x^2$ → $f(x) = x^4 + 1$ →	$f(x) = 2^x$ Fastest
31.	14	$x^2 + x$	1
32.	$\log_4(3)$	$\log_3(16)$	$\log_4\left(\frac{1}{3}\right)$
33.	a. x = 13/5 & 7	b. $x \approx 2.71$	c. x = 5
	d. x = 5	e. x = 713	f. $x \approx 0.75$
34.	$f(x) = (x-4)^2 - 11$	$f(x) = (x - \frac{9}{2})^2 + \frac{161}{4}$	$f(x) = 2(x-3)^2 - 30$
35.	$512x^{\frac{7}{3}}y^{\frac{5}{4}}$	$\frac{16}{25x^7y^2}$	
36.	Holes: x = 2, VA's: x = 3 HA's: y = 0	Holes: x = 2, VA's: x = – 4 HA's: y = 2	
37.	Quadratic Polynomial	Quartic Polynomial	Exponential Function
38.	24 mi/ hour	24 hours	
39.	$P = \frac{kQ}{RT}$	P = 18	
40.	$\frac{(x+6)(x+1)}{x}$	$\frac{(x-3)}{(x-4)}$	$\frac{(x+6)(x-7)}{(x+2)(x-5)}$