Placement: Self Study Guide and Review for MAT 1475

		Textbook	WeBWorK
Topic	Sample question	Review the topics and practice from the	For further sample question for self
to review	for self test	textbook:	test and practice, go to:
		<u>https://openlab.citytech.cuny.edu/</u>	<u>https://mathww.citytech.cuny.edu/</u>
		mat1375coursehub/resources/	webwork2/Guest_AccessMAT1375/
		textbook/	Click on: "Guest Login"
Functions	(a) Find the domain and range of	Read chapter 3 and 5:	WeBWorK Set:
(domain and	the function $f(x) = x - 4$	Practice exercise (p. 45): 3.6	"Functions - Notation"
range)		Practice exercises (p. 73-74): 5.1, 5.2	
Functions	(b) Evaluate and simplify the	Read chapter 3:	WeBWorK Set:
(evaluation)	difference quotient $f(x+h) - f(x)$	Practice exercises (p. 44-45): 3.1, 3.4, 3.5	"Functions - Difference Quotient"
	h		
	for $f(x)=x^2-5x$		
Functions	(c) Find the composition $f \circ g(x)$	Read chapter 6.1:	WeBWorK Set:
(composi-	for the functions $f(x) = x^2 + 3x$	Practice exercises (p. 84): 6.4, 6.5	"Functions - Operations"
tion)	and $g(x)=2x+7$		
Functions	(d) Find the inverse of the function	Read chapter 7:	WeBWorK Set:
(inverse	c() 2	Practice exercise (p. 95-96): 7.2	"Functions - Inverse Functions"
function)	$f(x) = \frac{1}{x+3}$		

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Polynomial	(e) Find the roots of	Read chapters 9.1 and 9.2:	WeBWorK Sets:
functions	$f(x)=2x^3-5x^2+2x$	Practice exercise (p. 129): 9.5	"Polynomials - Graphs"
		Practice exercise (p. 144): 10.3	"Polynomials - Theory"
Rational	(f) Graph the rational function,	Read chapter 11.1:	WeBWorK Sets:
functions	and identify its asymptotes,	Practice exercises (p. 168): 11.1-11.4	"Rational Functions - Domains"
	<i>x</i> -intercept(s), and <i>y</i> -intercept:		"Rational Functions - Intercepts"
	x-1		"Rational Functions - Asymptotes"
	$y - \frac{1}{x^2 - 4}$		
	(a) Solve the inequality: $x-3 > 0$	Read chapter 12:	WeBWorK Set:
	(g) solve the mequancy: $\frac{1}{x+5} \ge 0$	Practice exercise (p. 180): 12.4	"Rational Functions - Inequalities"

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Exponential	(h) Graph the function:	Read chapter 13:	WeBWorK Set:
and logarithmic functions	$f(x)=3^{-x}$	Practice exercises (p. 197-198): 13.2	"Exponential Functions - Graphs"
	(i) Graph the function:	Read chapter 13:	WeBWorK Set:
	$f(\mathbf{x}) = \ln (\mathbf{x} - 4)$	Practice exercises (p. 198): 13.6	"Logarithmic Functions - Graphs"
Solving	(j) Solve for <i>x</i> : $3e^{x-2} = 5$	Read chapter 14:	WeBWorK Set:
exponential equations		Practice exercise (p. 207): 14.5	"Exponential Functions - Equations"

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Trigono-	(k) State the amplitude,	Read chapter 17:	WeBWorK Sets:
metric	period and phase shift of	Practice exercise (p. 251): 17.6	"Trigonometry - Graphing Amplitude"
functions	the following function:		"Trigonometry - Graphing Period"
	$f(x)=5\cdot\sin(2x-\pi)$		"Trigonometry - Graphing Phase Shift"
	Graph the function.		"Trigonometry - Graphing Comprehensive"
Solving	(1) Find all of the solutions	Read chapter 20:	WeBWorK Set:
sin, cos, tan	between 0 and 2π of the	Practice exercise (p. 283): 20.4	"Trigonometry - Equations"
equations	following equation		
	$2 \cdot \cos^2(x) + \sqrt{3} \cdot \cos(x) = 0$		

Selected answers:

(a) domain
$$D = R$$
, range $R = [-4, \infty)$, (b) $2x - 5 + h$, (c) $(f \circ g)(x) = 4x^2 + 34x + 70$, (d) $f(x) = \frac{2}{x} - 3$, (e) $x = 0, x = 2, x = \frac{1}{2}$,
(f) vertical asymptotes: $x = 2, x = -2$, horizontal asymptote: $y = 0$, x-intercept: $x = 1$, y-intercept: $y = \frac{1}{4}$,
(g) solution set $S = (-\infty, -5) \cup$, (j) $x = 2 + \ln(\frac{5}{3})$, (k) amplitude $A = 5$, period $P = \pi$, phase shift $S = \frac{\pi}{2}$, (l) $x = \frac{\pi}{2}, x = \frac{3\pi}{2}, x = \frac{5\pi}{6}, x = \frac{7\pi}{6}$