★ This summer assignment is intended to prepare you for the math course above.
★ You will find examples and video links to help you complete the practice.

Skill 1: Quick Domain Review

Helpful Video Link:
➔ Hint: Denominators cannot equal zero, and you cannot take the square root of a negative.
➔ How To Find The Domain of a Function - Radicals, Fractions & Square Roots - Interval Notation

Practice: Find the domain for each of the following functions.

1) $f(x) = 3x + 4$	2) $h(x) = \dfrac{6x}{x^2 - 6}$
3) $g(x) = \sqrt{x}$	4) $k(x) = x^2 - 1$
5) $f(x) = \dfrac{4x}{6x^2}$	6) $h(x) = \sqrt{-2x + 1}$

Skill 2: Factoring Review

Helpful Video Link:
➔ Factoring

Practice: Solve each of the following using methods such as factoring, quadratic formula, completing the square, square roots, etc.

1)	$x^2 - 5x + 6 = 0$	2)	$7x^2 = 8x$
3)	$x^4 - 16 = 0$	4)	$3x^2 - x = 4$
5)	$(x - 3)^2 = -9$	6)	$x^2 - 6x + 21 = 0$
7)	Find the value to complete the square: $x^2 + 12x +??$			

Skill 3: Function Notation

Practice:

Given $f(x) = x^2 + 3x - 5$, evaluate and simplify:					
1)	$f(5) =$	2)	$f(-4)=$	3)	$f(x - 5) =$

Given $f(x) = 5x - 3$; $g(x) = 2x + 5$; $h(x) = x^2$; $j(x) = x^3$; Find the following and state the domain for each.			
4)	$f(x) - g(x)$	5)	$\frac{h(x)}{j(x)}$
6)	$h(x) \cdot j(x)$	7)	$\frac{f(x)}{g(x)}$

Skill 4: Linear Equations and Average Rate of Change

Helpful Video Link:
➔ Average Rate of Change

Practice:

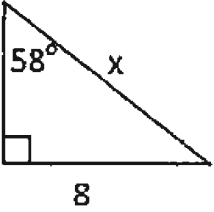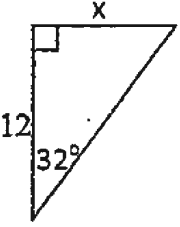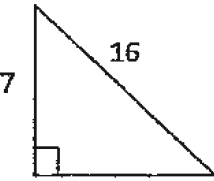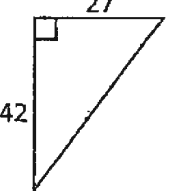|			
1)	Write the equation for a line in slope-intercept form that contains the points (1, 4) and (6, 2).	2)	Write the equation for a line in slope-intercept form that has zero slope passing through (5, -3).
3)	Given a line has a slope of $\frac{3}{4}$ and contains the points (7, 3) and (a, 6). Find a.	4)	Given a line has an x-intercept of 5 and a y-intercept of 3, write the equation of this line in slope-intercept form.
5)	Find the average rate of change given a line through the points (-3, -5) and (10, 15).	6)	Find the average rate of change of the function $f(x) = x^2 + 2x - 5$ on the interval $[-2, 4]$.

Skill 5: Solving Right triangles and Trig Ratios

Helpful Video Link:
➔ Trigonometry - How To Solve Right Triangles
➔ Angle of Elevation and Depression Word Problems

Practice:

Find the measure of the side labeled x.		
1)	2)	

Solve for the missing sides and angles.		
3)	4)	

5)	An airplane is directly above a beacon that is 8,000 feet from an airport control tower. The angle of depression from the plane to the base of the control tower is 5°. How high above the beacon is the plane? Draw a diagram as part of the solution process.
6)	Given a right triangle with a leg of length of 6 and hypotenuse length of 15, state the six trig ratios.