



Math Summer Assignment for  
**PreCalculus Honors**  
Wall Township Math Department  
Optional Summer Assignment



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



Helpful Video Link:

→ [❖ 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 $[-2, 4]$ .

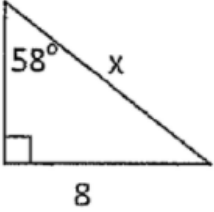
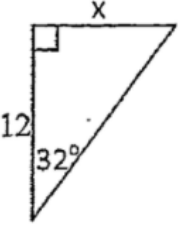
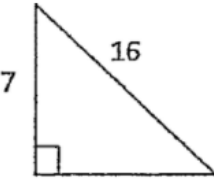
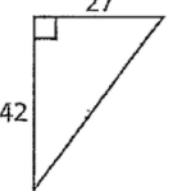
### Skill 5: Solving Right triangles and Trig Ratios



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 $5^\circ$ . 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.

## Skill 6: Trig Values



Helpful Video Link:

→ [Unit Circle Trigonometry - Sin Cos Tan - Radians & Degrees](#)

Practice: Find the exact value for each of the following.

1)	$\sin \frac{3\pi}{4}$	2)	$\sin \frac{11\pi}{6}$
3)	$\cos \frac{\pi}{6}$	4)	$\cos 0$
5)	$\tan \frac{4\pi}{3}$	6)	$\tan \pi$