HOUSTON HIGH SCHOOL

2026-2027 Pre-Term Work

Course Name	**AP Precalculus**
Teacher Name and Contact Email	**Seulah Ku Lee** **Seulah.ku@gmsdk12.org**
Pre-Term Work Assignment Description	**Prerequisite skills for AP Precalculus**
Purpose of Pre-Term Assignment	**The purpose of this pre-term assignment is to ensure that students have mastered the essential AGA (Algebra I-Geometry-Algebra II) skills needed to be successful in AP Precalculus. The concepts and skills included in this assignment provide the mathematical foundation for the course and are necessary for students to engage successfully with advanced topics throughout the year.** **The skills covered in the pre-term work will not be re-taught in AP Precalculus. Students are expected to enter the course with a strong understanding and mastery of these mathematical concepts. Completing the assignment carefully and independently will help students identify areas that may need additional review before the course begins.**
Assignment Due Date	**First Day of Class**
How will this assignment be submitted to the teacher?	**Printed and physical copy turned in on the first day of class.**
How will this assignment work be assessed (include rubric, if applicable)?	**The Pre-Term Work will be assessed in two ways:** **1. Assignment Grade: Completion of the Pre-Term Work will count as an assignment grade and is due on the first day of class. Late credit deductions will apply to assignments submitted after the due date.** **2. Quiz Grade: A quiz covering the concepts and skills included in the Pre-Term Work will be administered on the second day of class. Students are expected to demonstrate mastery of these concepts, as they will not be re-taught in AP Precalculus.**

Additional Resources:	

Name: _____

AP Precalculus Pre-Term Work

Directions:

1. The purpose of this pre-term assignment is to ensure that students have mastered the essential AGA skills needed to be successful in AP Precalculus. The concepts and skills included in this assignment provide the mathematical foundation for the course and are necessary for students to engage successfully with advanced topics throughout the year.
2. The skills covered in the pre-term work will not be re-taught in AP Precalculus. Students are expected to enter the course with a strong understanding and mastery of these mathematical concepts. Completing the assignment carefully and independently will help students identify areas that may need additional review before the course begins.
3. This packet is to be completed **without the use of a calculator**. It is designed to take several hours, so please plan accordingly and allow yourself enough time to complete it carefully. The purpose of this packet is to review important concepts and help ensure a successful start to AP Precalculus.
4. All answers must be written in **exact form**—decimal answers will not be accepted, and all fractions must be simplified completely. **You are required to show all work leading to each solution in the space provided in order to receive full credit.**
5. The Pre-Term Work will be assessed in two ways:
    a. Assignment Grade: Completion of the Pre-Term Work will count as an assignment grade and is due on the first day of class. Late credit deductions will apply to assignments submitted after the due date.
    b. Quiz Grade: A quiz covering the concepts and skills included in the Pre-Term Work will be administered on the second day of class. Students are expected to demonstrate mastery of these concepts, as they will not be re-taught in AP Precalculus.

<table>
<tr><td colspan="3">Write the equation of the line in point slope form $y - y_1 = m(x - x_1)$ using $m = \frac{y_2 - y_1}{x_2 - x_1}$ given:</td></tr>
<tr><td>1. (0,1) and (1,2)</td><td>2. (-3,-1) and (5, -2).</td><td>3. Through (5,3) with slope=0.</td></tr>
<tr><td colspan="2">4. Through (4,4) and parallel to $y = \frac{9}{4}x$</td><td>5. A line passes through (3,4) and perpendicular to $y = -\frac{3}{5}x - 4$</td></tr>
<tr><td colspan="3">Solve the following for the unknown variable.</td></tr>
<tr><td colspan="2">6. $2x - 3 = 5 - x$</td><td>7. $\frac{1}{2}(x - 3) + x = 17 + 3(4 - x)$</td></tr>
</table>

8. $\frac{2x+1}{5} = \frac{3x+1}{2}$	9. $\frac{x}{2} + \frac{5x}{6} = \frac{2x}{3} + \frac{1}{12}$
10. $2x + 4 \geq 3$	11. $4x - 9 < 7x + 15$
Factor the following polynomials.	
12. $\mathbf{3x^4 - 9x^2}$	13. $18x^3y^5 - 12x^4y^2$
14. $x^2 - 3x + 2$	15. $x^2 + 5x - 6$
16. $2x^2 + 5x - 3$	17. $-2x^2 + 7x + 15$
18. $9x^2 - 16$	19. $10x^2 - 19x + 6$

Solve for x by using the quadratic formula. $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

20. $-x^2 - 3x - 2 = 0$

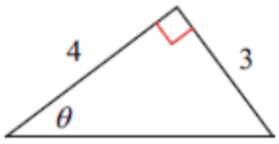
21. $2x^2 + 2x - 4 = 0$

Find the value of the trig function below. Answers should be written as a fraction.

22. $cos\theta$ =

23. $sin\theta$ =

24. $tan\theta$ =



Given $f(x) = x^2 - 3x + 4$ **and** $g(x) = x + 1$**, find the following:**

25. $f(3)$

26. $g(f(x))$

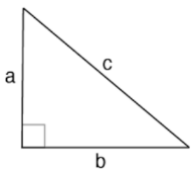
27. $f(-t)$

28. $f(x) + g(x)$

29. $f(x) - g(x)$

30. $f(x)g(x)$

Use the diagram to answer the following questions on Pythagorean Theorem. Simplify your answers.



31. Find c if $a = 4\sqrt{5}, b = 2$

32. Find b if $a = 2\sqrt{3}, b = 6$

33. If $a = b$, and $b = 10$, find a.

Solve the following system of equations using substitution or elimination

34. Solve $\begin{cases} 5x + 7y = 6 \\ 10x - 3y = 46 \end{cases}$

35. Solve $\begin{cases} x + 2y = 10 \\ y = 2x - 5 \end{cases}$

36. Solve $\begin{cases} 3x + y - 2z = -12 \\ 2x + 2y - 3z = -12 \\ 5x + 3y + 2z = 4 \end{cases}$

State the domain of the functions below using interval notation.

37. $h(x) = (x - 3)^2$

38. $f(x) = \sqrt{x + 1}$

39. $f(x) = \frac{1}{x-5}$

Simplify the following expressions. Answers should contain only positive exponents.

40. $(3y)2x^2y^2$

41. $(3x^2y^3)^3$

42. $(x^{-1}y^2)^4$

43. $\frac{2x^4y^3}{4x^2}$

Write each expression in radical form given exponential form or vice versa.

44. $4^{\frac{5}{3}}$	45. $2^{\frac{1}{2}}$	46. $\left(\sqrt{5}\right)^{5}$	47. $\frac{1}{\sqrt[3]{7n}}$

Simplify and rationalize each radical expression.

48. $\sqrt{80}$	49. $2\sqrt[3]{81x^2z^3}$	50. $\frac{3}{\sqrt{8}}$
51. $\sqrt{\frac{4}{75}}$	52. $\frac{21}{\sqrt{3}}$	53. $4\sqrt{3}\cdot\sqrt{21}$
54. $-2\sqrt{12}+3\sqrt{12}$	55. $2\sqrt{24}-\sqrt{12}-\sqrt{3}$	56. $\sqrt{10}(4\sqrt{5}+\sqrt{6})$

a) Classify the following function as exponential growth or decay and (b) state the y-intercept.

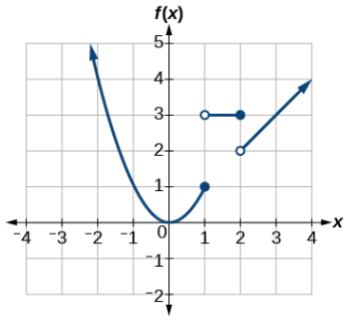
57. $y=2(0.5)^x$	58. $y=e^x+3$

Find the values below for the given piecewise functions.

59. $f(12)$ given

$$g(t) = \begin{cases} -2t(t+1) & , \quad t < 6 \\ \dfrac{5t}{6} & , \quad 6 \leq t \leq 12 \\ 2t^2 + 3t & , \quad t > 12 \end{cases}$$

60. $f(2)$ from the graph below.



Did you go to Houston High School in 25~26? _____

Who was your Algebra II teacher? _____