

Summer 2019 Review

For

Students Entering

Precalculus



Holy Name High School

Complete the following problems using the calculator only to check your manual answers. Due Thursday, August 22, 2019.

(NOTE: Use www.khanacademy.org www.mathisfun.com or www.purplemath.com to find specific math related topics with accompanying videos and demonstrations)

NAME: _____

PRE-CALCULUS

SUMMER ASSIGNMENT

Dear Student,

Welcome to Pre-Calculus! In preparation for this class, all students enrolled in Pre-Calculus must complete this summer assignment. This assignment will provide you with a review of important skills and concepts that you are expected to know when taking Pre-Calculus and will help to maximize your success in this class. It is recommended that you work on this assignment throughout the summer.

The assignment is due on the **first day of class**. It will be **graded upon completion and accuracy**. You **MUST** show all work in order to receive credit. The grade on this assignment will be the **first recorded grade for Quarter One in Pre-Calculus**.

If you need assistance, it is strongly recommended that you refer to the examples and tutorials on the following websites:

www.khanacademy.org

www.mathisfun.com

www.purplemath.com

Have a wonderful summer!

Name _____

Pre-Calculus Summer Assignment

Simplify the following:

1. $x^2y(3x^3 + 4xy + y^2)$	2. $\sqrt{75}$
3. $\frac{w^3x^2}{wx^{-3}}$	4. $(\sqrt{5}+1)(\sqrt{5}-1)$
5. $\frac{4}{2-\sqrt{2}}$	6. $\frac{x^2+8x+15}{x^2+3x}$
7. $\frac{4}{1-3i}$	8. $(2-5i)(2+5i)$

Factor and solve.

9. $x^2 - 4x - 5 = 0$

10. $2x^2 - 32 = 0$

11. $x^4 + 6x^3 + 9x^2 = 0$

12. $x^3 + 2x^2 - 16x - 32 = 0$

13. $x^3 + 27 = 0$

14. $x^4 - x^2 - 12 = 0$

Solve the following

15. $3x - 7 = 4$

16. Solve for x in terms of a and b :
 $2ax + bx + 7 = 11$

17. $\frac{3m-2}{5} = 6m$

18. $1 - 4d > 4 - d$

19.
$$\begin{cases} 3x - y = 4 \\ x + 5y = -4 \end{cases}$$

20. $x^2 - 10x + 3 = 0$

21. $3|x - 4| = 9$

22. $4|x - 1| > 12$

Given $f(x) = 3x^2$ and $g(x) = -2x + 5$ find the following:

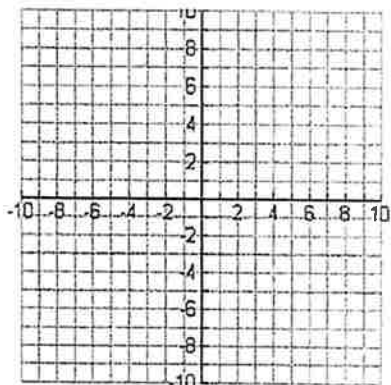
23. $f(-3)$

24. $-g(\frac{1}{2})$

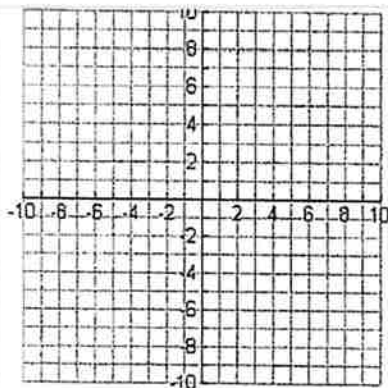
25. $f(g(1))$

26. $g(g(-3))$

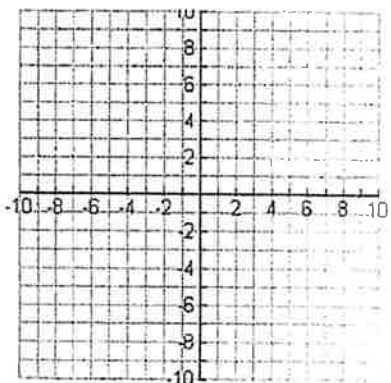
27. Find the equation of the line passing through $(-2, 4)$ and $(1, 7)$.



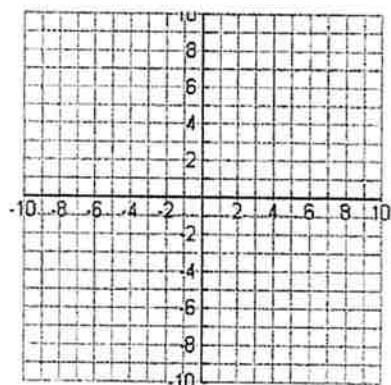
28. Find the equation of a line perpendicular to $2x - 5y = 12$ passing through the point $(1, -2)$. Graph it.



29. Graph the parabola $y = \frac{1}{2}x^2 - 2x + 1$. Label the vertex and axis of symmetry.



30. Graph the parabola $y = x^2 + 4x + 4$. Label the vertex and axis of symmetry.



Right Triangle Trigonometry

Special Right Triangles

45-45-90: In a 45-45-90 triangle, the side lengths have a ratio of $a : a : a\sqrt{2}$.

30-60-90: In a 30-60-90 triangle, the side lengths have a ratio of $a : a\sqrt{3} : 2a$.

Trigonometry:

For any right triangle:

$$\sin \theta = \frac{\text{opposite leg}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent leg}}{\text{hypotenuse}}$$

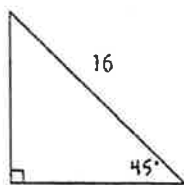
$$\tan \theta = \frac{\text{opposite leg}}{\text{adjacent leg}}$$

Pythagorean Theorem:

In a right triangle with legs a and b and hypotenuse c , then $a^2 + b^2 = c^2$.

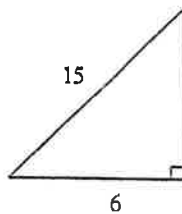
Find the length of the missing sides of the figures. Leave your answer in simplest radical form.

31.



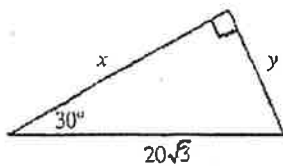
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32.



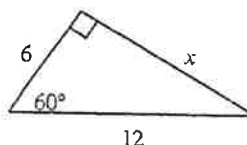
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33.



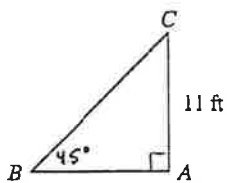
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34.



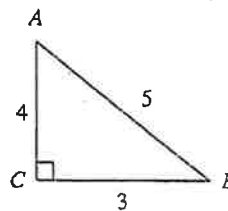
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35.



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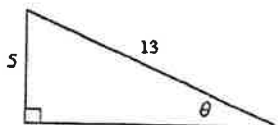
36. Write the ratios for $\sin A$, $\cos A$, and $\tan A$.



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Write and solve trig equations to find the missing sides or angles of each.

37.



38.

