Precalculus CPA Summer Assignment

If you are a student who recently completed Algebra 2 and will be entering Precalculus CPA, then you should completed the following exercises. These problems are indicative of skills that you should have acquired during Algebra 2 and are essential for success in Precalculus!

You should bring the completed assignment along with any questions to class on the first day of school. Your questions will be reviewed during the initial days of school. An assessment on the assignment will be given at the conclusion of the first week of school.

Writing Linear Equations – Slope-Intercept Form, Point-Slope Form, and Standard Form

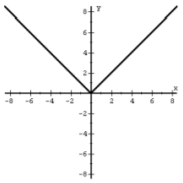
1. Write the equation of a line in **<u>slope-intercept form</u>** that goes through $(4,-3)$ and has a slope of $-\frac{1}{4}$.

2. Write the equation of a line in **<u>standard form</u>** that goes through $(5,-3)$ and $(0,4)$.

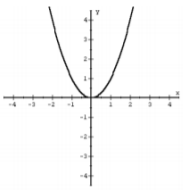
3. Write the equation of a line in **<u>point-slope form</u>** that is perpendicular to the line $9x-3y=6$ and goes through $(2,3)$.

Transformations of Functions – Absolute Value, Quadratics, and Square Roots

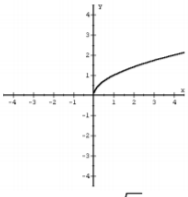
On the right are the parent functions of the absolute value, quadratic, and square root functions. Use these and your knowledge of transformations to graph the functions below!



$f(x) = |x|$
Absolute Value

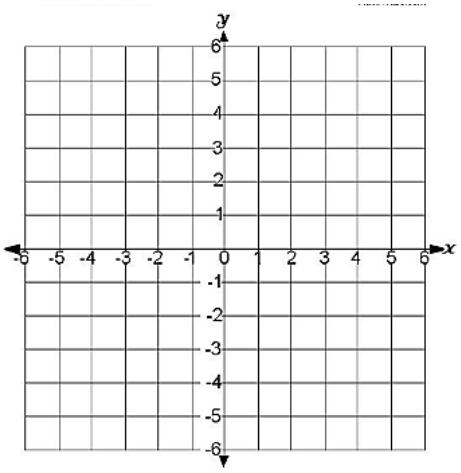


$f(x) = x^2$
Quadratic

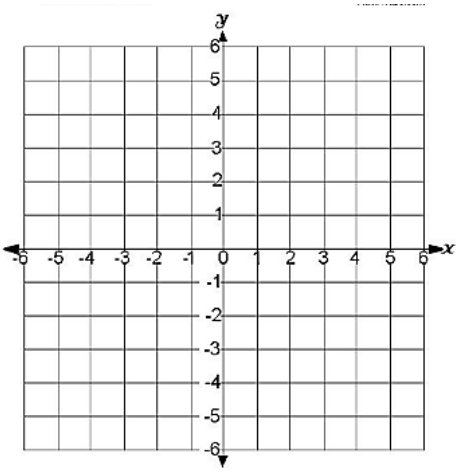


$f(x) = \sqrt{x}$
Square Root

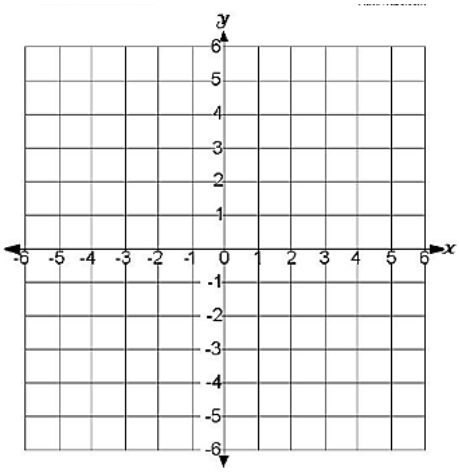
4. $y=2|x+1|-3$



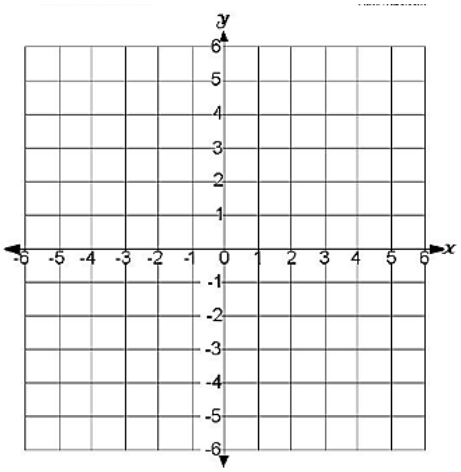
5. $y=-(x-2)^2+5$



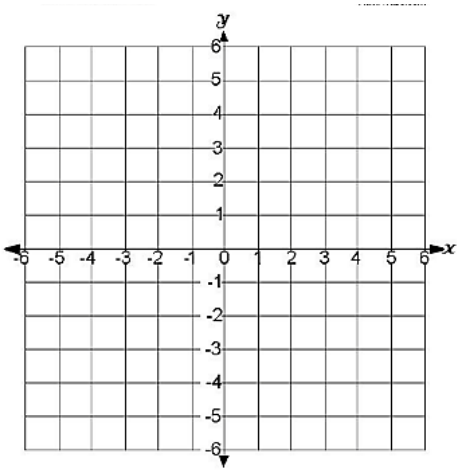
6. $f(x)=\sqrt{x+4}-2$



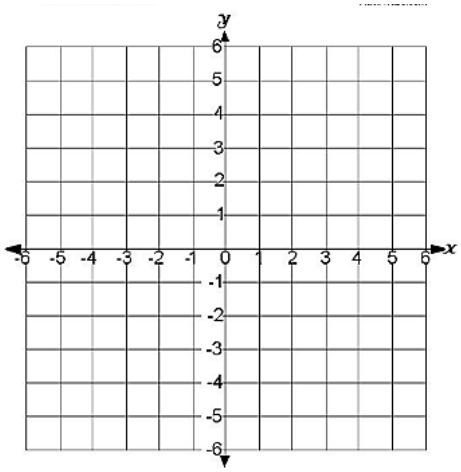
7. $f(x)=3-\frac{3}{4}|x+1|$



8. $y=\frac{1}{2}(x-3)^2-6$



9. $f(x)=\sqrt{-x+4}+1$



Factoring – All Methods

Factor each polynomial below **completely** using the method you see fit. If it is not factorable, write prime.

10. $25x^4-196y^2$

11. p^2-p-72

12. $5xy-5x+y-1$

13. $4x^3+20x^2-9x-45$

14. x^3-27

15. $2a^2+21a+27$

16. $2m^4-13m^2+20$

17. $144+81c^2$

18. $3a^3b + 30a^2b + 72ab$

19. $162b^2 - 338$

20. $24x^3 + 3x^2 - 56x - 7$

21. $14v^4 - 32v^3 - 30v$

22. $8x^6 + 125$

23. $5x^5 - 13x^3 + 8x$

24. $x^2 - 18xy + 81y^2$

25. $4k^2 - 8k - 5$

Solving Quadratics – Factoring, Quadratic Formula, Completing the Square

Solve each quadratic below by the indicated method.

26. $3x^2 - 19x - 14 = 0$; factoring

27. $8x^3 + 12x^2 - 2x - 3 = 0$; factoring

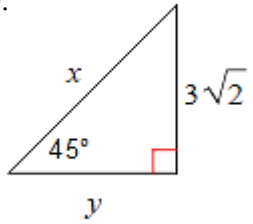
28. $4x^2 + 2x = -7$; quadratic formula

29. $-x^2 - 4x + 6 = 0$; quadratic formula

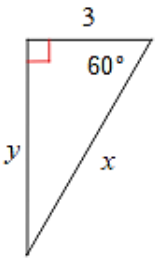
Trigonometry

Find the missing side lengths. Leave your answers as radicals in simplest form.

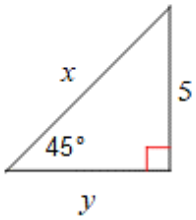
30.



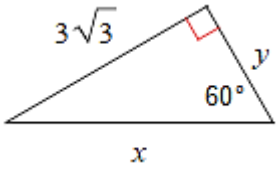
31.



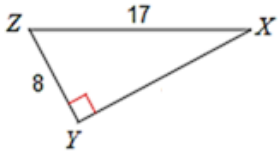
32.



33.



34. Find the value of each trigonometric ratio.



$\sin X =$ _____ $\cos X =$ _____ $\tan X =$ _____

35. Find the measure of the indicted angle. Round to nearest tenth.

