SUMMER WORK 2025
Honor Precalculus BC

Dear all, welcome to the Honors Precalculus BC class!

This is your first assignment for this class!
Is due on the first day of school 2025!

Show all your work to get full credit. ALL work must be done in this paper. Scales must be shown in each graphing problem.

Quiz will be given on these types of problems to ensure your readiness for H Pre-Cal!

Draw a clear picture to describe a problem when needed.

Please place your answers in the space provided!

1. Evaluate the following expressions, showing step-by-step calculations:

a. $\left(26\frac{2}{3}\div 6.4\right)\cdot\left(19.2\div 3\frac{5}{9}\right)-\frac{8\frac{4}{7}\div 2\frac{26}{77}}{0.5\div 18\frac{2}{3}\cdot 11}-\frac{1}{18}.$

a. _____

b. $\frac{(7-6.35)\div 6.5+9.9}{\left(1.2:36+1.2\div 0.25-1\frac{5}{16}\right):\frac{169}{24}}.$

b. _____

3. Simplify: $\frac{\sqrt{a}+1}{a\sqrt{a}+a+\sqrt{a}} \div \frac{1}{a^2-\sqrt{a}}$

3. _____

4. Simplify:

a. $\frac{9x^2-25}{3x^2-5x-3xy+5y}$

b. $\left(3\sqrt{x} \bullet \sqrt[4]{y}\right)^4 - 3x^2y - \left(-2x\sqrt{y}\right)^2$

a. _____

b. _____

c. $\frac{a-\sqrt{a}-2}{2-\sqrt{a}}$

d. $\left(n+2+\frac{8}{n-2}\right) \div \frac{n^2+4}{n^2-4n+4}$

c. _____

d. _____

5. Factor completely:

a. $3a^2 + 27ab + 54b^2$

b. $6x^4 + 3x^3y^2 - 2xy^3 - y^5$

a. _____

b. _____

c. $26x^4y^7 - 34x^3y^4 + 12x^8y$

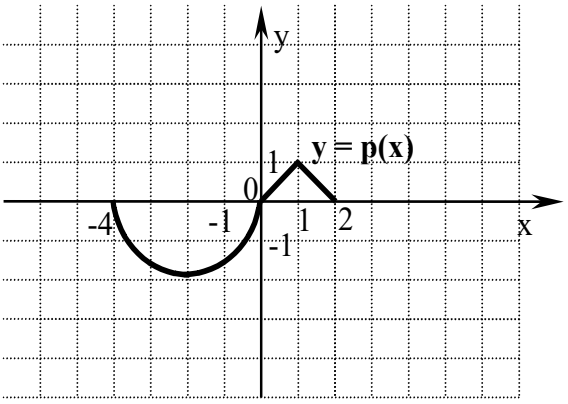
d. $49a^2 - 7a - 6$

c. _____

d. _____

6. A function y = p(x) is given by the graph below.

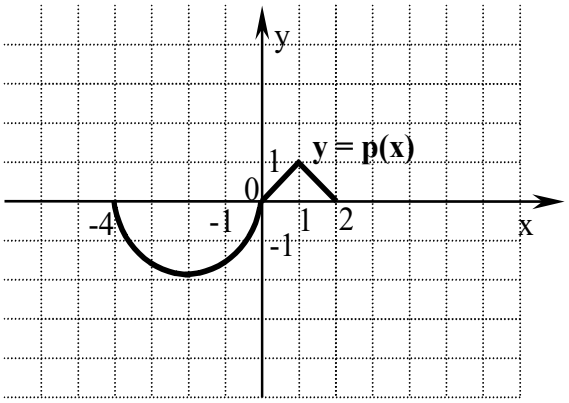
a. Find the domain and range of the function.



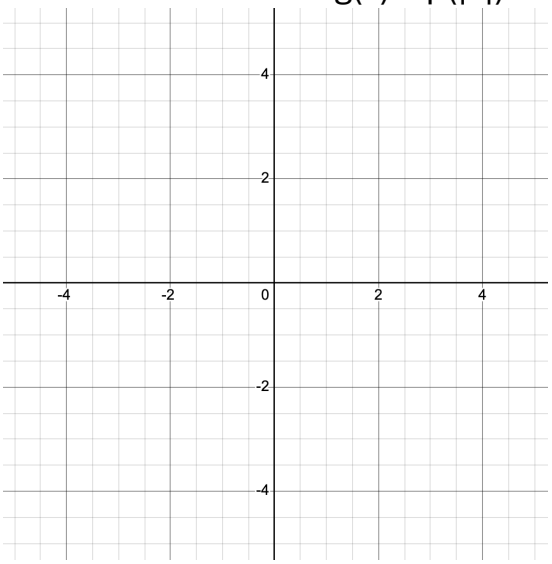
Domain: _____ Range: _____

6. continues...

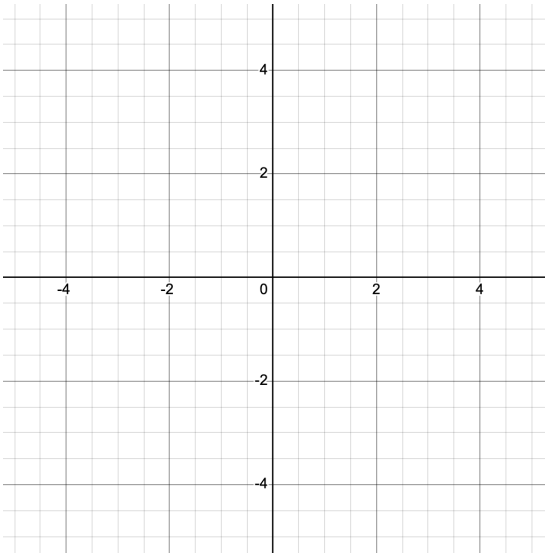
original function p(x)



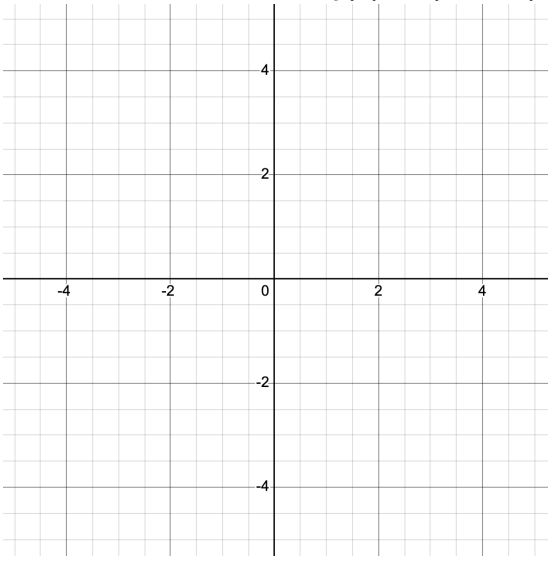
b. Draw the function g(x) = p(|x|)



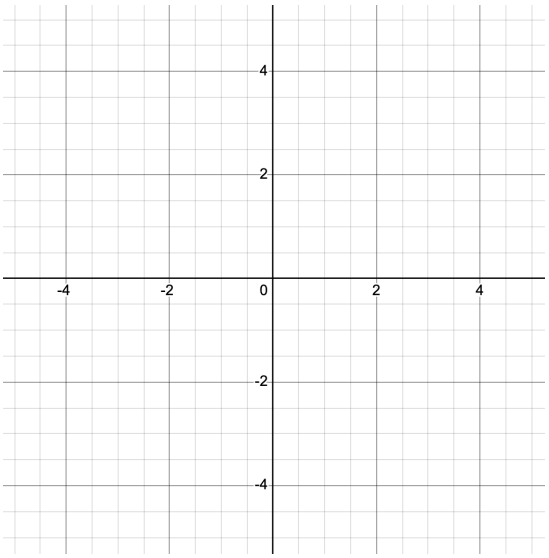
c. Draw the function h(x) = |p(x)| - 2



d. Draw the function j(x) = f(2x – 4)



e. Draw the function m(x) = -p(|x|) + 1



7. Solve the following equations and systems of equations. Always indicate the domain before solving! Solve the most efficient way! For the answers to the systems, you must give the answers as ordered pairs!

a. $2log_{16}(2x-1)=1$

b. $x^{\frac{4}{3}}-1=15$

a. _____

b. _____

c. $\sqrt{|x|+2}-\sqrt{|x|-2}=\sqrt{2}$

d. $\begin{cases} x^2+2y^2=2 \\ y-x^2=-1 \end{cases}$

c. _____

d. _____

e. $(logx)^4 - 5(logx)^2 + 6 = 0$

f. $\begin{cases} 3x - 2y = -1 \\ 4x^2 - y = 2 \end{cases}$

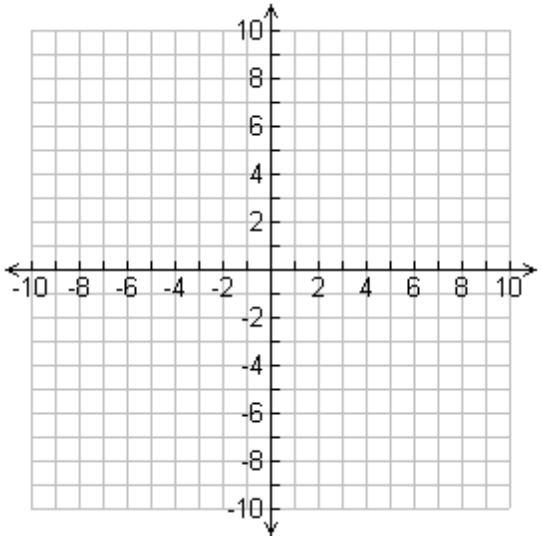
e. _____

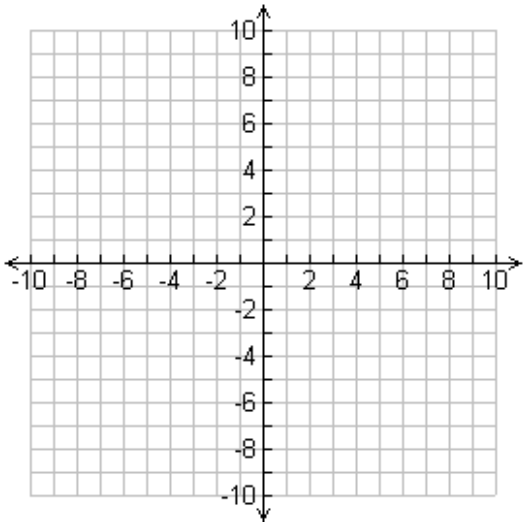
f. _____

g. Solve by graphing (think first where is the origin): $\begin{cases} (x-3)^2 + (y+6)^2 = 25 \\ 3x + 4y = -15 \end{cases}$

8. Accurately graph the following functions on the grids below, defining the domain and range; clearly show the x- and y-intercepts, please:

a. $h(x)=3\cdot 2^{x}-1$ b. $g(x)=\log_3 x$

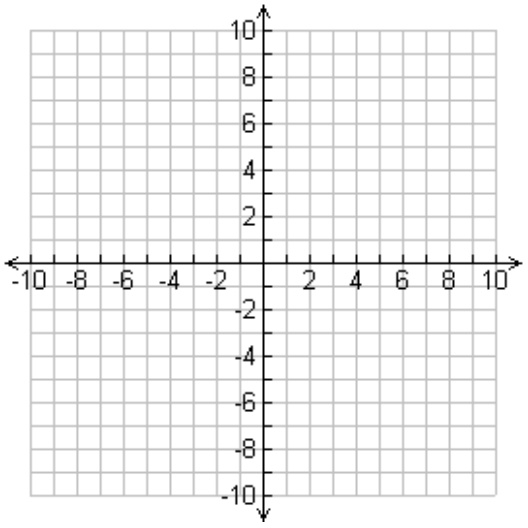


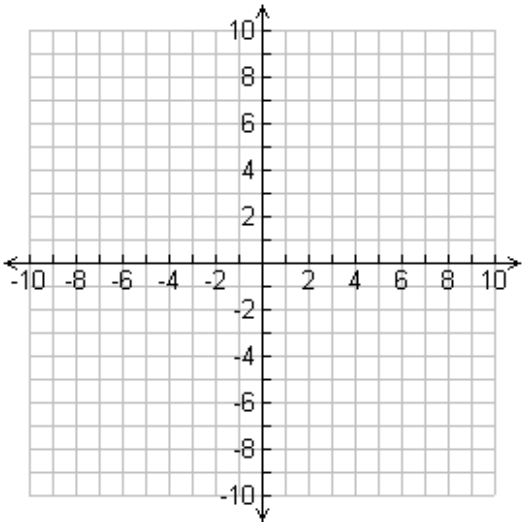


Domain and Range:

a. _____ b. _____

(c)) f(x) = 2(x – 2)(x – 4) (d) k(x) = -2|x – 3| + 4





Domain and Range:

c. _____ d. _____

9. Solve the following logarithmic equations (circle your answers):

a. $\log_{82} x = 1$

b. $\log_{82} 1 = x$

c. $8^{2\log_2 3} = x$

d. $16^{x-5} = 32^{\frac{1}{3}x+2}$

e. $\log_x 27 = \frac{3}{4}$

f. $\log_7 18 - \log_7 3 = \log_7 x$

g. $\log_x 5 + \log_x 9 = \log_3 3$

h. $2\log_2 x - \log_2 10 = 3\log_2 4$

i. $\log_4(x-4) + \log_4(x+2) = \log_7 49$

j. $3\log_3(x-1) = 6$

k. $2\log_9(x^2-4) = \log_9 4$

l. $4x\log_2 4 = 10$

m. $\log\ x + \log\ (x-21) = 2$

n. $\log_{\frac{1}{3}} x = 2^{\log_3 9}$

10. When solving word problems, please set up an equation, and then solve it.

a. Last year, three fifths of the Outing Club were girls, but this year the number of boys doubled and there are 6 more girls this year than there was last year. There are now as many boys in the club as there are girls. How many members did the club have last year?

a. _____

b. A dealer has 100 pounds of tea which costs him 65 cents per pound. How many pounds of tea costing 50 cents per pound should he mix with it, so that he can make a profit of at least 40% when selling the mixture at 75 cents per pound?

b. _____

c. Albert walks at a speed that is 0.5 mph faster than Beth's walking speed. In 5 hours Beth walks 1 mile more than Albert walks in 4 hours. Find Albert's walking speed.

c. _____

d. Given two linear equations: $y = x + m$ and $y = mx - 4$, find all values of m such that the point of intersection of these two lines is on the line $y = 2x - 2$.

d. _____

For your first quiz, you should be quick in evaluating these types of expressions without a calculator:

a) $\sin\pi$ b) $\cos\left(\frac{3\pi}{2}\right)$ c) $\tan\left(\frac{5\pi}{6}\right)$ d) $\sin\left(\frac{4\pi}{3}\right)$

e) $\cos\left(\frac{7\pi}{4}\right)$ f) $\sin\left(\frac{2\pi}{3}\right)$ g) $\cot\left(\frac{5\pi}{4}\right)$ h) $\csc\left(\frac{11\pi}{6}\right)$

i) $\sin\left(-\frac{27\pi}{6}\right)$ j) $\sin\left(-\frac{17\pi}{3}\right)$ k) $\sin\left(\frac{108\pi}{8}\right)$ l) $\cos\left(-\frac{11\pi}{4}\right)$

$m)\ sec(750º)$ $n)\ Arcsin(0.5)$ (o) $Arccos(\sqrt{3}/2)$ $p)\ Arctan(1)$