

AP Precalculus Summer Work

Welcome to AP Precalculus! This will be a rigorous course that should prepare you for AP Calculus AB or BC. This assignment covers concepts you are expected to know how to do when you walk through our door the first day. If you need to use other resources to help jog your memory about some of these concepts, it's okay. We will not have the time to reteach these concepts so that's why we want to make sure you've refreshed yourself on them. You'll be surprised how many concepts from Algebra 1, Geometry, and Algebra 2 you will need to use in AP Precalculus.

Be sure to show ALL your work neatly. You'll need to label your work so that we can tell what problem the work goes to. DO NOT COPY SOMEONE ELSE'S WORK. DO NOT USE ANY APP TO COMPLETE ANY PART OF THIS ASSIGNMENT.

This assignment is due the first day of class...no exceptions. After we have looked at your work, we will spend a few days going over the problems. We will have a test over the concepts in the summer work within the first two weeks of school starting.

We look forward to a great year together! Please feel free to email either of us any questions you may have to feltman.cheryl@fcboe.org or munsey.daire@fcboe.org.

Name_____

AP Precalculus Summer Work

Solve for x.

1. $2(x + 2) - 5 = 3(x + 1)$

2. $\frac{3}{2}\left(\frac{7}{3}x + 1\right) = \frac{5}{2}$

3. $6x^2 + 5x = 21$

4. $2x^2 + 21x + 40 = 0$

5. $\ln(x - 3) + \ln(x + 4) = \ln 2$

6. $\log_x 1/125 = -3$

7. $\log_4(1 - x) = 1$

8. $\log_3(2x^2 + 3x) = \log_3(11x + 4)$

Solve each system of equations.

9. $4x - y = 20$

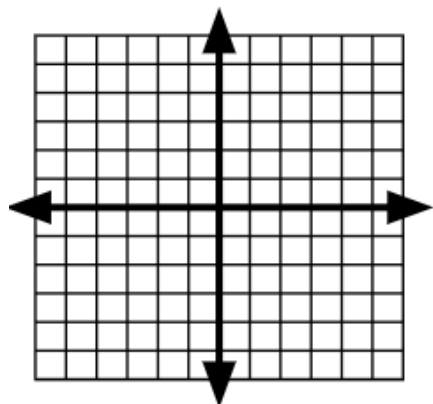
$-2x - 2y = 10$

10. $11x + 4y = -36$

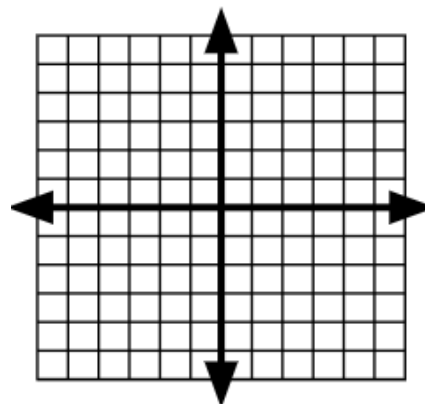
$-10x - 10y = 20$

Graph each function below. Be sure to graph and identify key points used to sketch the graph. Label the axes with the scale you are using.

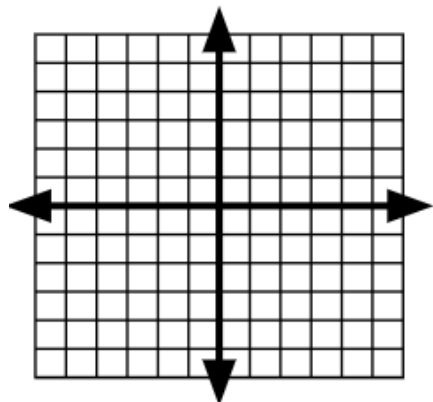
11. $h(x) = |x + 1| - 4$



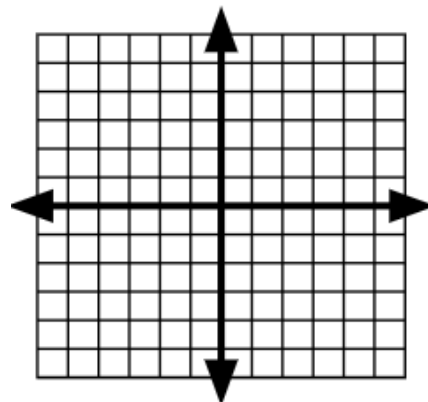
12. $y = -(x + 2)^2 + 3$



13. $y = 3(2)^{x-4} - 5$

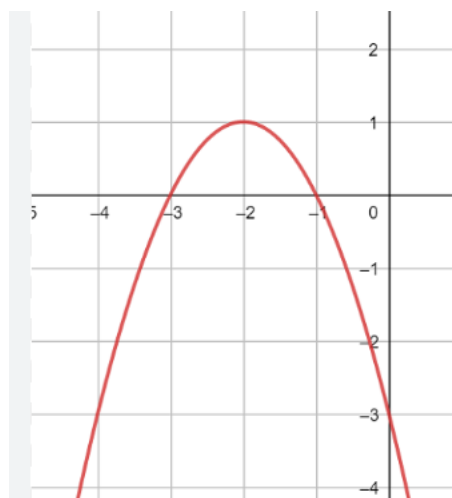


14. $f(x) = \log(x + 6) - 3$



15. Identify each characteristic of each function below.

a.



domain: _____

range: _____

x-intercept(s): _____

y-intercept: _____

maximum(s): _____

minimum(s): _____

increase: _____

decrease: _____

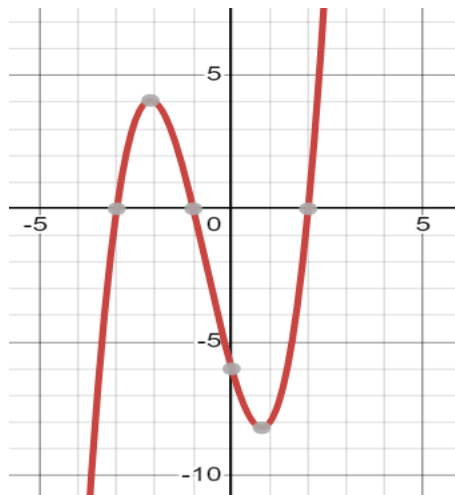
positive int.: _____

negative int.: _____

end beh.: as $x \rightarrow -\infty$ $y \rightarrow$ _____

as $x \rightarrow \infty$ $y \rightarrow$ _____

b.



domain: _____

range: _____

x-intercept(s): _____

y-intercept: _____

maximum(s): _____

minimum(s): _____

increase: _____

decrease: _____

positive int.: _____

negative int.: _____

end beh.: as $x \rightarrow -\infty$ $y \rightarrow$ _____

as $x \rightarrow \infty$ $y \rightarrow$ _____

16. Factor completely.

a. $12x^4 - 8x^2 + 24x$

b. $4x^2 - 25$

c. $x^2 - 9x + 18$

d. $x^2 + 3x - 28$

e. $x^2 - 7x - 30$

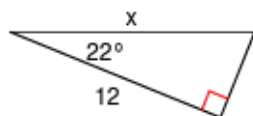
f. $5x^2 + 14x - 3$

g. $4x^2 - 8x - 21$

h. $121x^4 - 64y^4$

17. Solve for the specified information using Right Triangle Trig ratios (SOH-CAH-TOA). Round answers to nearest thousandth.

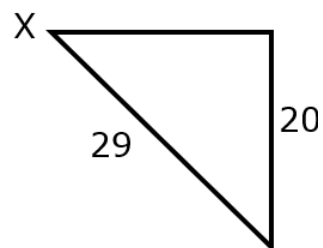
a.



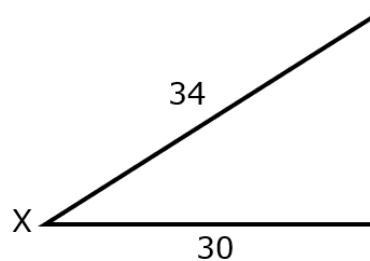
b.



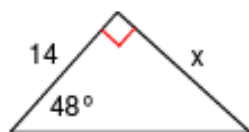
c.



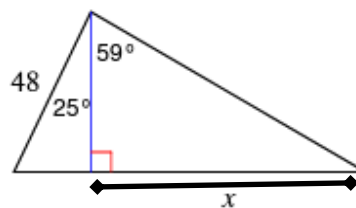
d.



e.



f.



APPLICATIONS OF SOH-CAH-TOA

18. From a point on the ground 12 ft. from the base of a flagpole, the angle of elevation to the top of the pole is 53° . How tall is the flagpole?

19. From the top of a vertical cliff 40 m high, the angle of depression of an object that is level with the base of the cliff is 34° . How far is the object from the base of the cliff?

20. You need to know your unit circle---degrees and ordered pairs.

a. $\cos 120 =$ b. $\tan 315 =$ c. $\sin 210 =$

d. $\tan 30 =$ e. $\sin 300 =$ f. $\cos 240 =$

21. Find the positive coterminal angle for each.

a. 60 b. 210 c. 480

22. Find the reference angle for each angle.

a. 315 b. 240 c. 145