

AP Precalculus Prerequisite Packet

2026-2027 School Year

- The following set of problems represents content your teacher will expect you to know and recall from Algebra 2 and Geometry. This is prerequisite content knowledge for students entering into the AP Precalculus course.
- It is expected that each student entering this class looks over this packet and ensures that they know and can demonstrate all the skills required to complete the problems in this packet.
- This packet will NOT be collected, but there will be a **Prerequisite Assessment** within the first full week of classes that will cover this content.
- If a student DOES NOT pass the Prerequisite Assessment with an 80% or better, then they WILL be required to complete and submit the Prerequisite Packet and retake the Prerequisite Assessment until they show mastery of the content at 80% or greater. This process must be completed within the first 3 weeks of school.
- The recommendation is that every student reviews and completes this packet prior to the start of the school year.

Radicals & Fractions & Exponents

$$\sqrt{75} + 7\sqrt{3} - \sqrt{48}$$

$$\frac{x^{3/4}}{x^{7/5}}$$

Simplify and rationalize: $\frac{1}{\frac{\sqrt{3}}{3}}$

$$\frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}$$

Simplify: $\frac{4x(2x)^3}{16x^3} + 2x$

Simplify: $\frac{100x^{3a}y^{-5}}{25x^{-a}y^6}$

Solve for x: $2x = \frac{2\pi}{3}$

Simplify: $x^{\frac{1}{3}}(3x^{\frac{1}{2}} + x - 2)$

Solve for x: $\frac{7}{2}x - 1 = 3 - \frac{5}{4}x$

Rationalize: $\frac{2}{\sqrt{2}}$

Simplify: $\frac{\pi}{2} + \frac{3\pi}{4}$

Simplify: $\frac{\frac{2}{5} - \frac{1}{2}}{\frac{3}{10}}$

Linear and Piecewise

Write the equation of a line that goes through (3, 7) and (-3, 4).

Write the equation of a line that is perpendicular to $y = \frac{1}{2}x + 3$, and goes through (3, -6).

Write the equation of a line that is parallel to $7x - 2y = 4$ and goes through (-3, 5).

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

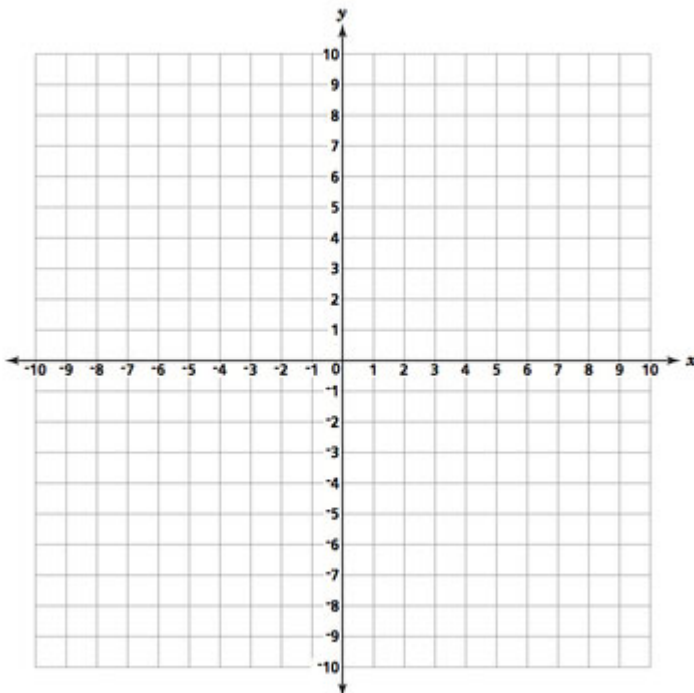
Write the equation of a vertical line that goes through (-2, 5).

Evaluate $f(2)$ if

$$f(x) = \begin{cases} x^2 - 1, & x < 0 \\ 4x - 3, & x \geq 0 \end{cases}$$

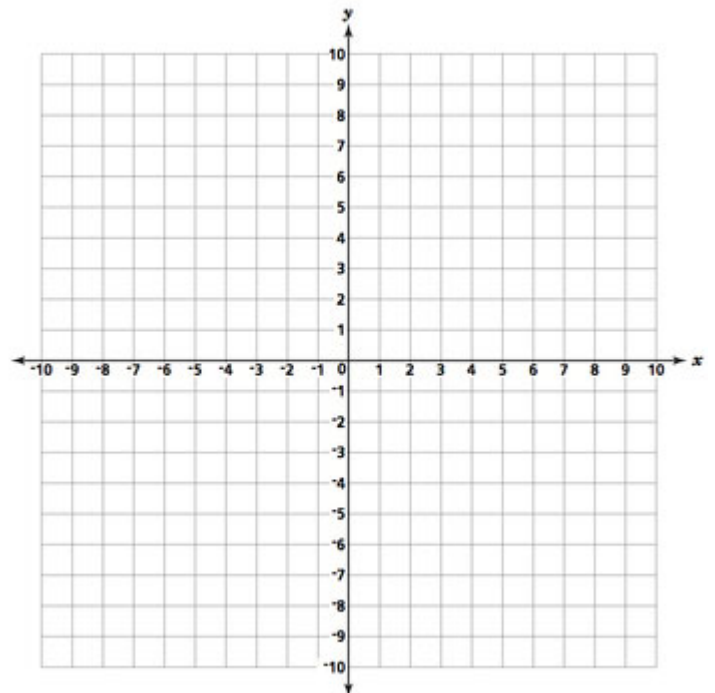
Sketch $f(x)$ if

$$f(x) = \begin{cases} \frac{1}{2}x, & x < -2 \\ 4x - 1, & x \geq -2 \end{cases}$$



Sketch $g(x)$ if

$$g(x) = \begin{cases} 7, & -5 < x \leq -3 \\ 2x, & -3 < x < 0 \\ -4, & 0 < x \leq 3 \end{cases}$$



Factoring and Solving

Factor: $x^2 - 6x + 9$

Factor: $3x^3 + 15x^2 - 18x$

Factor: $7x^2 - 4x - 3$

Factor: $6x^2 + 23x - 18$

Factor: $7x^3 - 343x$

Factor: $4x^2 - 64$

Factor fully:
(Hint: Factor out the binomial GCF)
 $9x^2(x + 4) - (x + 4)$

Factor: (Hint: use the difference of cubes)
 $3x^4 - 375xy^3$

Factor to solve for x: $9x^2 = x$

Factor to solve: $20x^2 = 7x + 6$

Solve with the Quadratic Formula:
 $-16t^2 + 12t + 5 = 0$

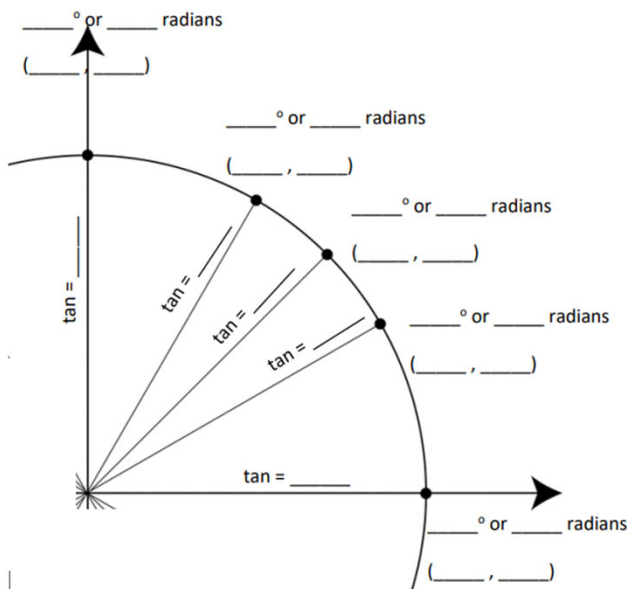
Factor by Grouping to solve for x:
 $9x - 45 = x^3 - 5x^2$

How might your calculator or Desmos help you factor?

What questions do you have regarding factoring?

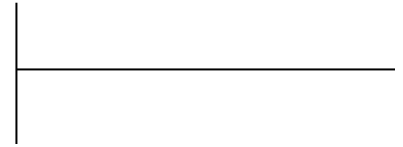
Trigonometry

Review the Unit Circle. Complete the cosine, sin and tangent values for Quadrant 1.

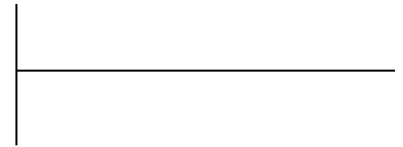


Sketch the parent function for each trig function below.

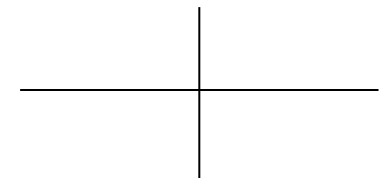
$$f(x) = \sin(x)$$



$$g(x) = \cos(x)$$



$$h(x) = \tan(x)$$



Find the exact value using the unit circle.

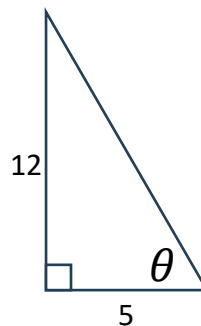
$$\sin\left(\frac{4\pi}{3}\right)$$

$$\cos\left(\frac{5\pi}{4}\right)$$

$$\tan\left(\frac{11\pi}{6}\right)$$

$$\sin(0)$$

Give all six trig values for angle θ .



Solve for θ if $0 < \theta \leq 2\pi$

$$\sin\theta = \frac{\sqrt{2}}{2}$$

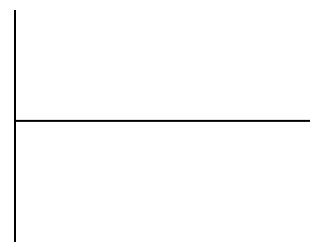
Solve for θ if $0 < \theta \leq 2\pi$

$$\tan\theta = -1$$

What is the domain and range of
 $f(x) = 4\cos(x)$

Graph the following:

$$f(x) = -2\sin(x) + 1$$



What questions do you have regarding trigonometry?

Logarithms and Exponentials

Evaluate: $\log_2 8$

Evaluate: $\log_3 \frac{1}{9} + \log_2 32$

Evaluate to three places: $\log_5 20$

Solve for x using a log, round to 3 places:
 $e^x = 5$

Condense into log:

$$\ln(x) - \frac{1}{3}\ln(y) + \ln(x+1)$$

Expand into multiple logs:

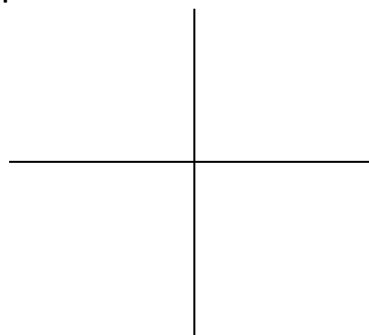
$$\log_2 \left(\frac{2\sqrt{x}}{y^4} \right)$$

Solve for x: $3 \log(x+5) = 6$

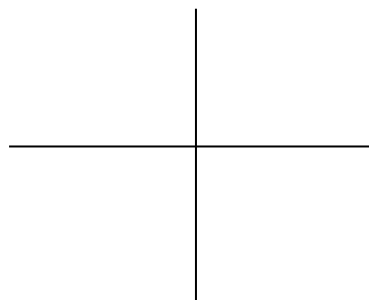
Solve for x: $4^{2x+5} = 16$

Graph each exponential function:

$$y = -2^x + 3$$

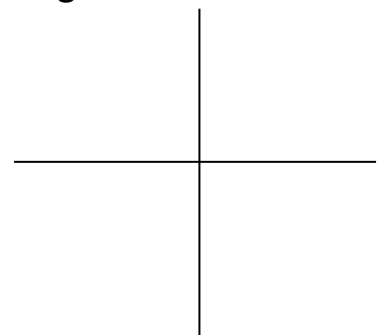


$$y = \frac{1^x}{2} - 5$$



Graph each log function:

$$y = \log_3(x+4)$$



$$y = -\ln(x-2)$$

