Optional Calculus CPA Summer Assignment

This assignment is designed to help you review and strengthen the Precalculus topics that will be essential in the Calculus CPA curriculum. You are expected to have a solid understanding of these concepts as preparation for this course.

A topic list along with links to selected videos is outlined on the following page should you need help with the concepts.

Linear equation	Problem 1
Piecewise function	Problem 3
Rational Functions	Problem 16 Problem 17
Right Triangle Trigonometry: Evaluating basic expressions	Extra practice problems

Linear Equation

1. Write each equation using the specified form.
Write the equation of a line, in point-slope and slope-intercept form, that meet the given conditions:

a. Passes through (-2, 4) and (-10, 10)

Point slope: _____

Slope-intercept: _____

b. Is perpendicular to the given line and passes through (-10, 10)

Point slope: _____

2. Write each equation using the specified form.
Write the equation of a line, in point-slope and slope-intercept form, that meet the given conditions:

a. Passes through (-2, 4) and (-10, -2)

Point slope: _____

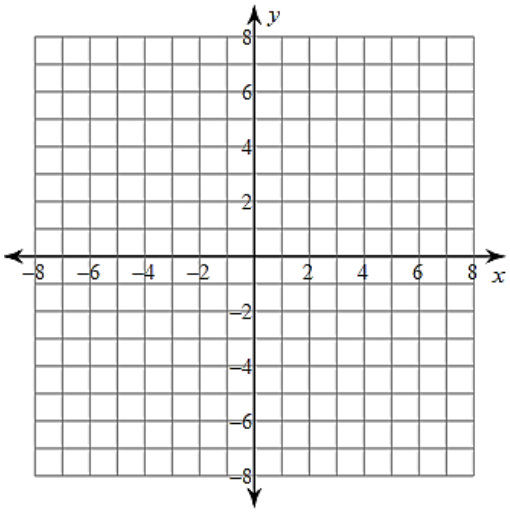
Slope-intercept: _____

b. Is parallel to $9x - 7y = 13$ and passes through (5, -11)

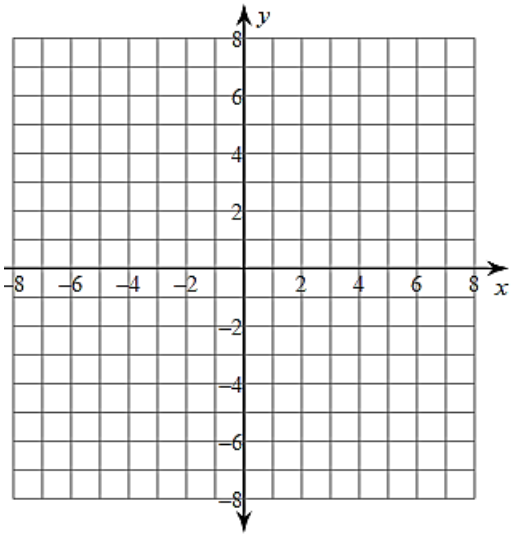
Point slope: _____

3. Graph piecewise functions

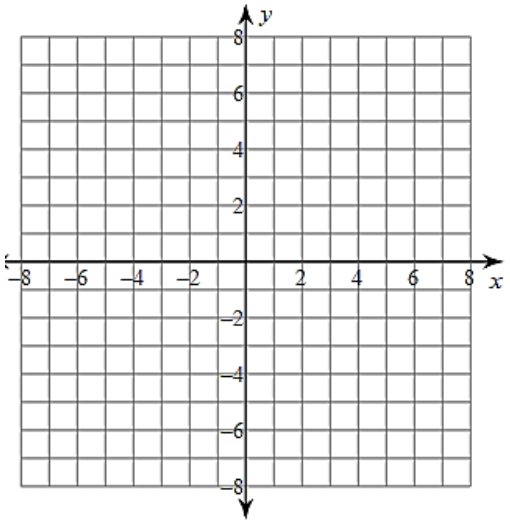
a. $f(x) = \begin{cases} x+2 & if\ x < 0 \\ 2x+5 & if\ 0 \le x \le 2 \\ -x+1 & if\ x > 2 \end{cases}$



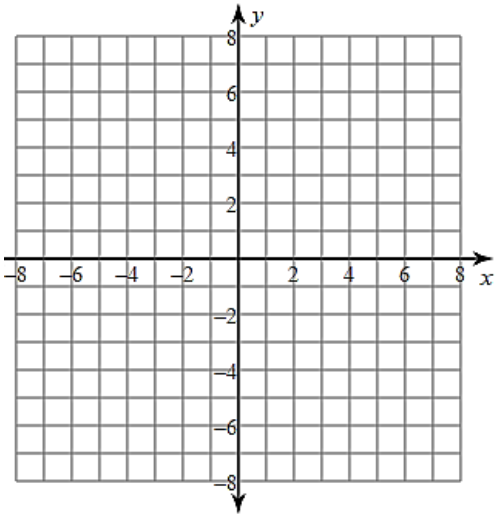
b. $h(x) = \begin{cases} -2x-4, & x \le -2 \\ x-3, & -2 < x < 2 \\ -5, & x \ge 2 \end{cases}$



a. $f(x) = \begin{cases} -3, & x < -2 \\ -|x|, & x \ge -2 \end{cases}$



d. $f(x) = \begin{cases} (x+2)^2, & x \le -1 \\ x+3, & x > -1 \end{cases}$



Rational Function

4. Sketch and label the rational function: $y = \dfrac{(x+4)(x+1)}{(x-2)(x+1)}$

Yint

Xint

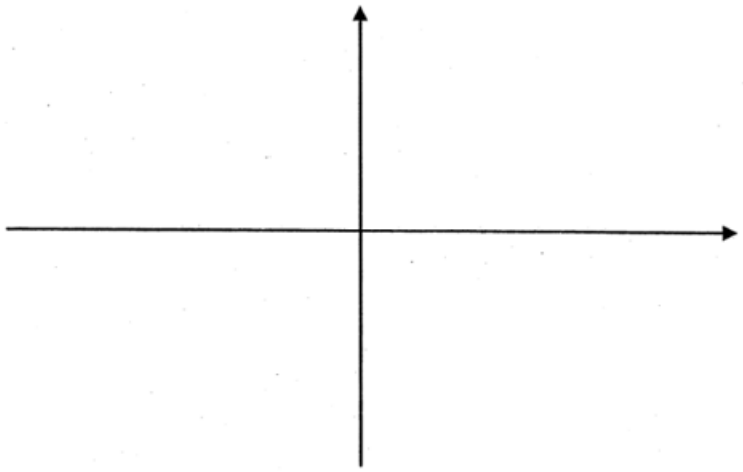
EV

VA

Hole

HA / SA/ EB

Crossings



5. Sketch and label the rational function: $y = \dfrac{x(x-1)^2(x-2)^2}{x^3(x-1)^2(x-2)}$

Yint

Xint

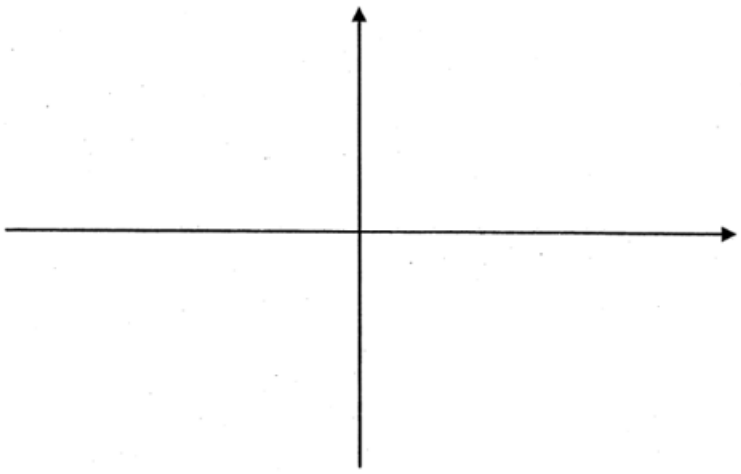
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Crossings



6. Sketch and label the rational function: $y = \dfrac{x^3}{x^4 + 1}$

Yint

Xint

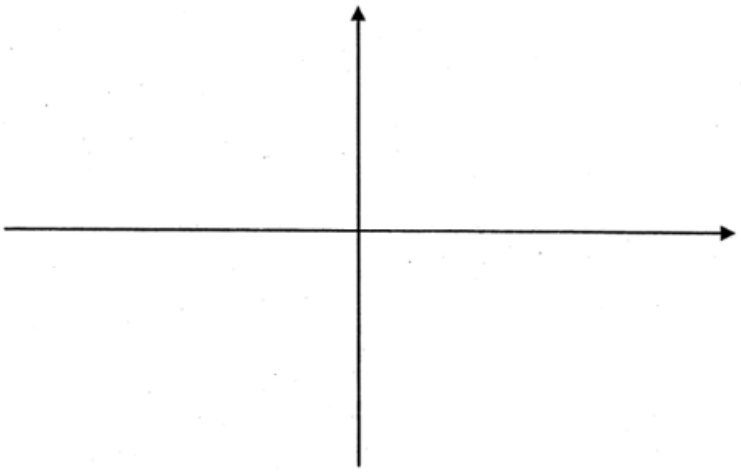
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Crossings



7. Sketch and label the rational function: $y = \dfrac{2x^2 + x - 1}{x^2 + x - 6}$

Yint

Xint

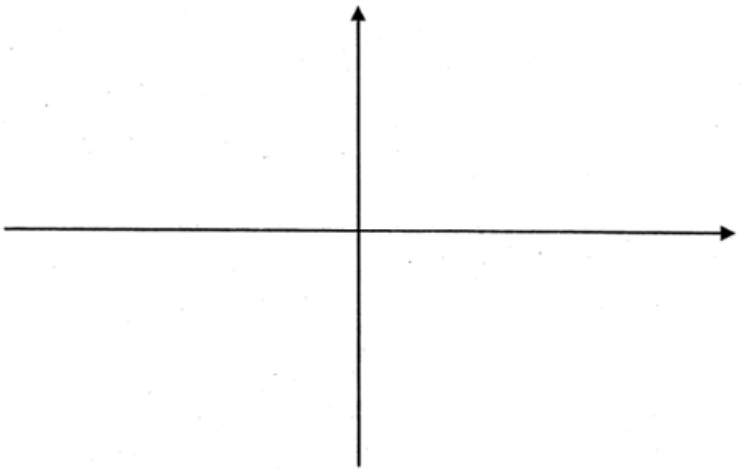
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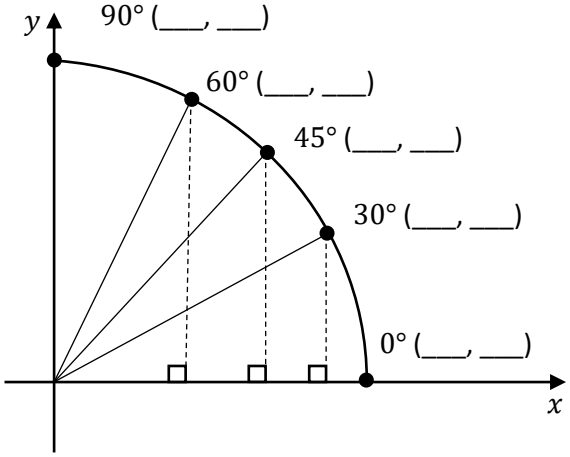
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Crossings



Trigonometry

8. Using your knowledge of special triangles and symmetry among circles, fill in the first quadrant of the Unit Circle.



Degrees	0°	30°	45°	60°	90°
Radians					
Sin					
Cos					
Tan					
Csc					
Sec					
Cot					

9. Evaluate each trig. expression.

a. $\cos\left(\frac{3\pi}{2}\right)$ b. $\sin\left(\frac{7\pi}{6}\right)$ c. $\tan\left(-\frac{2\pi}{3}\right)$ d. $\sec\left(\frac{3\pi}{4}\right)$

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