

SUMMER ASSIGNMENT FOR HONORS PRECALCULUS

Complete the following, and bring it with you on the first day of school. Feel free to utilize online videos (such as those on Khan Academy) if you need assistance remembering the concepts.

- 1) Simplify and identify any x-values for which the expression is undefined.

$$\frac{-5x}{x^2 - 5x + 6} - \frac{3}{x - 3}$$

- 2) Simplify $(5 - 2i)(6 + 3i) - i^{11}$

- 3) Simplify. Assume each is defined for all x.

a)
$$\frac{\frac{5 - x}{x + 2}}{x}$$

b)
$$\frac{5x}{9x^2} \div \frac{x + 10}{9x^3 + 90x^2}$$

- 4) Solve and remember to check for extraneous solutions.

$$\frac{1}{x} + \frac{x-4}{x+2} = \frac{x-1}{x^2+2x}$$

- 5) Solve by factoring

$$3m^3 + 21m^2 + 16m = -m^2 - 8m$$

- 6) Solve by completing the square

$$4b^2 + 20b - 103 = -7$$

- 7) Solve the system by elimination. Then write the equation of the vertical line through the solution of the system.

$$\begin{cases} 5x + 4y = -18 \\ -8x - 6y = 26 \end{cases}$$

- 8) Solve the system by substitution. Then write the equation of the horizontal line through the solution of the system.

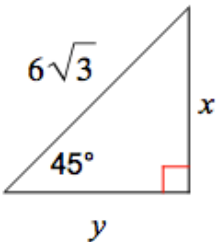
$$\begin{cases} 4x + 8y = -16 \\ 5x + 6y = -12 \end{cases}$$

- 9) Write the point-slope form of the equation of the line perpendicular $3x - 5y = 12$ through the point $(5, -2)$.

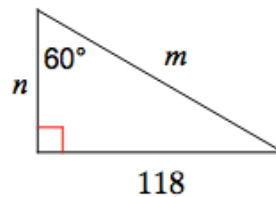
- 10) Write the slope-intercept form of the equation of the line through $(2, -4)$ and $(-1, 3)$.

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

a)

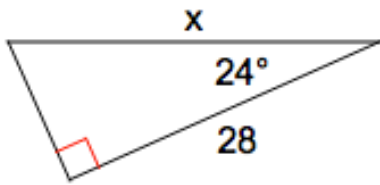


b)

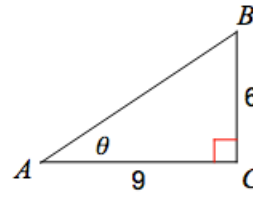


12) Find the measure of each side indicated. Round to the nearest tenth.

a)

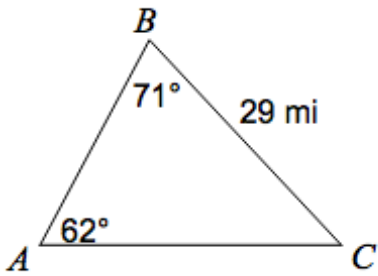


b)

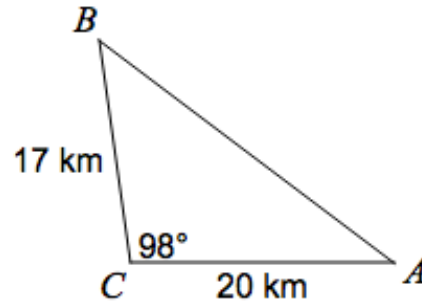


13) Solve each triangle. Round your answers to the nearest tenth.

a)



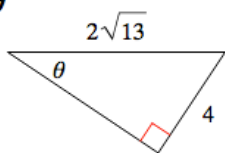
b)



14) Find the value of the trig function indicated.

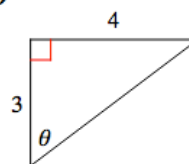
a)

$\sin \theta$



b)

$\sec \theta$



15) Find a positive and a negative coterminal angle for each given angle.

a) $\frac{17\pi}{10}$

b) -55°

16) Convert each degree measure into radians and each radian measure into degrees.

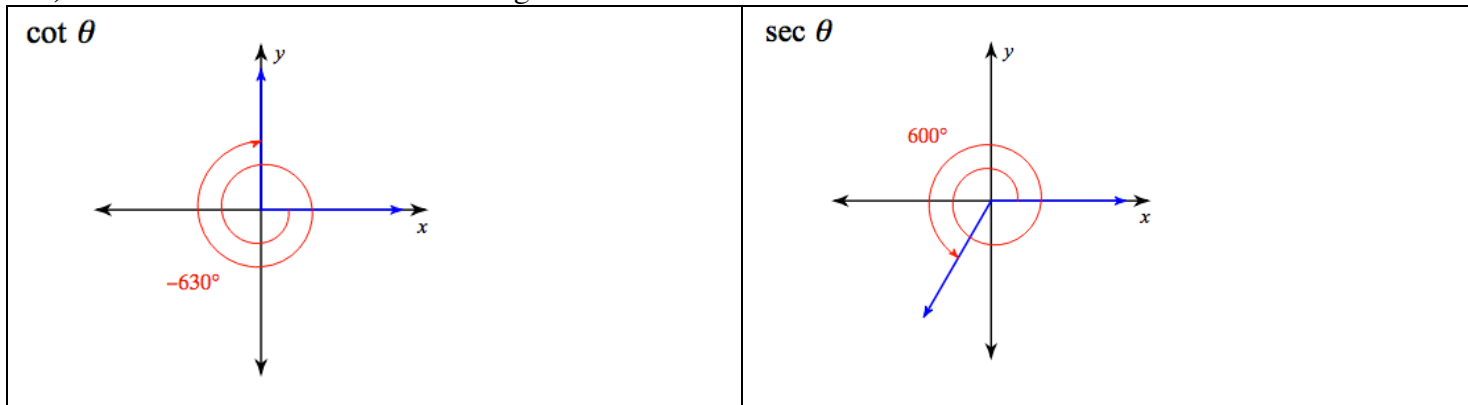
a) $\frac{31\pi}{12}$

b) -195°

17) Without a calculator, determine the exact value of each expression.

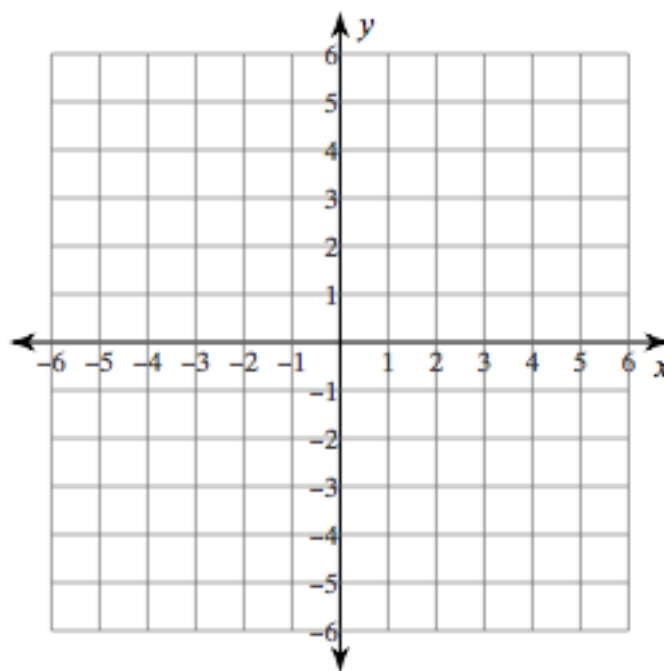
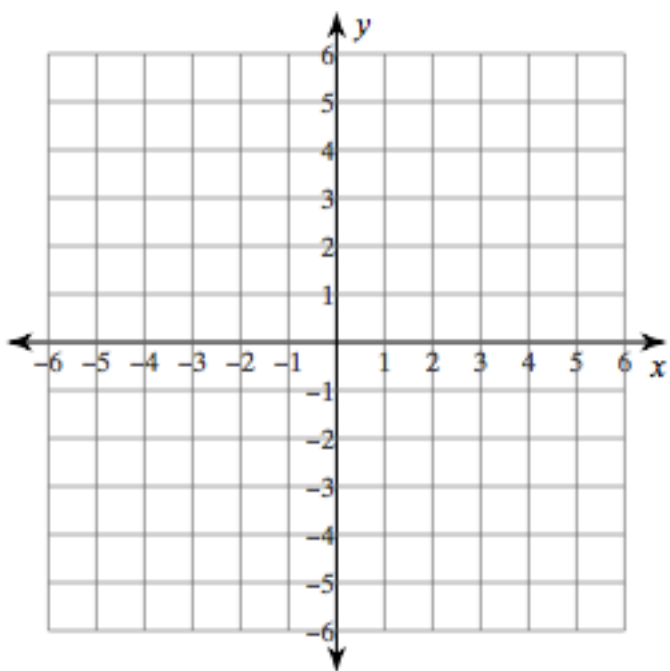
$\cos 0$	$\sin \frac{\pi}{3}$	$\cos \frac{3\pi}{4}$
$\sin(-\pi)$	$\sin \frac{5\pi}{6}$	$\cos \left(-\frac{\pi}{2}\right)$
$\tan \frac{3\pi}{4}$	$\tan \frac{\pi}{4}$	$\sec \frac{\pi}{3}$
$\csc \left(\frac{\pi}{4}\right)$	$\cot 0$	$\csc 0$

18) Find the exact value of each trigonometric function.



19) Graph $y = -2|x - 3| + 4$

20) $y = (x + 1)^2 - 3$

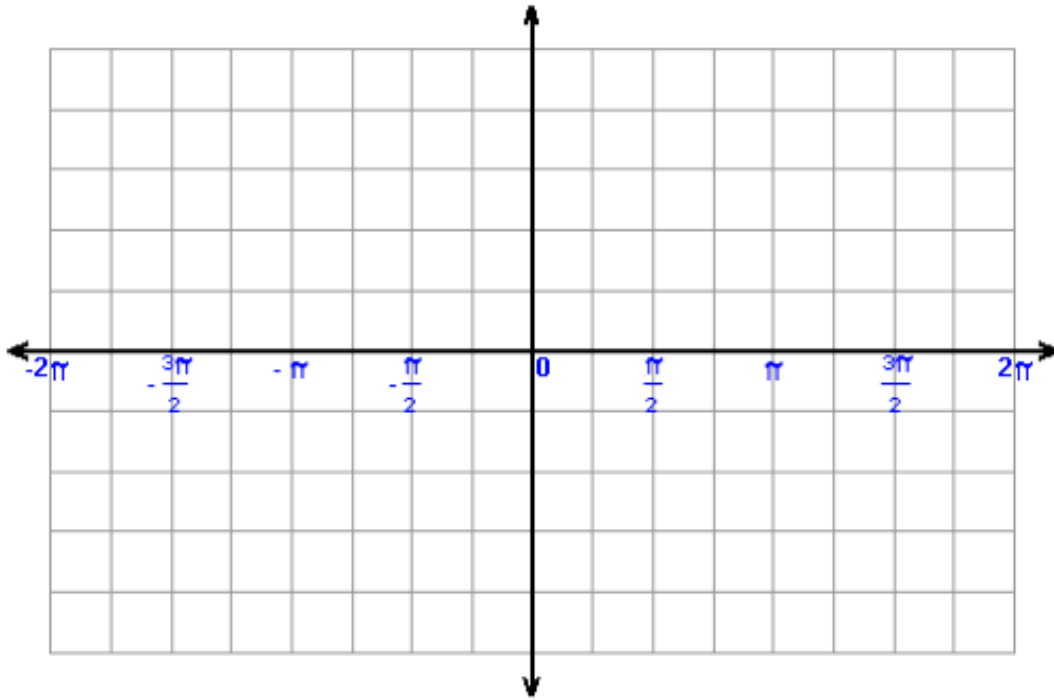


21) Given the graph of $f(x) = -x^3 + 3x^2 - 4$ below, identify each real zero, y-intercept, relative extrema, increasing and decreasing intervals, and end behavior.



22) Find the amplitude and period of each function, then graph.
Make sure to label the y-axis.

a) $f(x) = -2\sin(x - \pi) - 1$



b) $g(x) = 3\cos(4x) + 2$

