

Calculus

Name: _____

Summer Review (Textbook Chapter P)

Textbook Link:

<http://teacherpress.ocps.net/cynthiaandrews/files/2013/06/Calculus-9th-Edition-by-Ron-Larson-Bruce-H.-Edwards.pdf>

Chapter P (Prerequisite) concepts you should know before taking a Calculus course:

(Show all work – always)

1. Find all intercepts: $3x^2 + 2y^2 + 4xy - 12 = 0$

2. Find all intercepts: $y = x^2(x - 4)(3x - 7)$

3. Find all intercepts: $-4x^2 + 4x - 1 = y$

4. Find all intercepts: $y = \frac{2x + 3}{5 - x}$

5. Find all points of intersection: $x^2 - 2x - y = 6$ and $x - y = -4$
Answers must be written in ordered pair form.
6. Find all points of intersection: $y = -x^2 + 4x$ and $y = -x^2$
Answers must be written in ordered pair form.
7. The cost equation for manufacturing a product is $C = 5x^2 - 49x$. The revenue equation is $R = 3(x + 11)$. Determine the number of products that must be sold in order to break even ($R = C$).
8. Write the equation of the line passing through
- $(3, -4), (2, 5)$
 - $(-6, 2), (7, 2)$
 - $(-4, 3)$ with $m = \text{undefined}$
 - $(7, 6)$ with $m = 0$

9. Identify the slope and y-intercept: $3x - 2y = 10$.

10. Write the equation of the line passing through (4, -3) and

a. parallel to the line containing (6, 2) and (8, -1)

b. perpendicular to the line containing (0, -2) and (5, 0).

11. Identify the domain of each function:

a. $f(x) = 4x^2$

b. $g(x) = \sqrt{6x}$

c. $h(x) = \frac{-5}{x-2}$

d. $F(x) = \frac{1}{\sqrt{(x^2 - 9)}}$

e. $k(x) = \frac{-1}{|x^2 - 4|}$

12. Evaluate the function $f(x) = 5 - x^2$ for the given values:

a. $f(0)$

b. $f(-3)$

c. $f(m)$

d. $f(x-2)$

13. Given $f(x) = 3/x$ and $g(x) = x^2 - 1$, find

a. domain of $f(x)$

b. domain of $g(x)$

c. $f \circ g$

d. $g \circ f$

e. domain of $f \circ g$

f. domain of $g \circ f$

Trig Basics Review

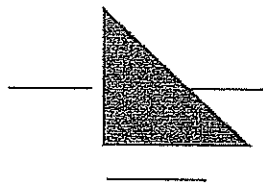
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A. Trig Ratios: Identify the function names **AND** their abbreviations with the given ratio. Write out the **full name** in the first space and the abbreviation in the second space.

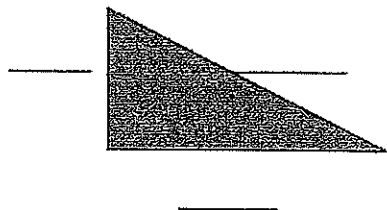
- 1. adjacent/hypotenuse _____
- 2. cosine/sine _____
- 3. hypotenuse/adjacent _____
- 4. hypotenuse/opposite _____
- 5. opposite/adjacent _____
- 6. opposite/hypotenuse _____
- 7. sine/cosine _____
- 8. 1/cosine _____
- 9. 1/sine _____
- 10. 1/tangent _____

B. Special Right Triangles

11. $45^\circ-45^\circ-90^\circ$ Fill in the side lengths.



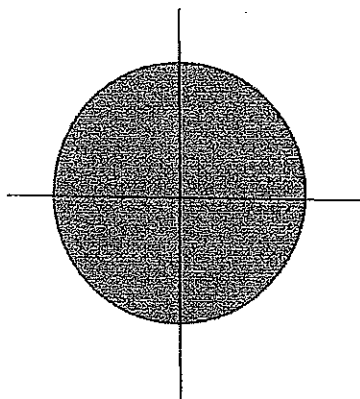
12. $30^\circ-60^\circ-90^\circ$ Fill in the side lengths.



C. Quadrantal Angles: Given the **quadrantal angles**, identify their ordered pairs (cos, sin) from the unit circle.

	0	$\pi/2$	π	$3\pi/2$	2π
(cos, sin)	(,)	(,)	(,)	(,)	(,)

D. Signs of the Unit Circle:



Indicate the sign (+ or -) of the trig ratio in each quadrant: (Use the diagram to the left as a visual aid.)

Quad	1	2	3	4
sin				
cos				
tan				
cot				
csc				
sec				

E. Fill in the table with the **EXACT values** (no decimals!):

$\sin \pi/6$	$\cos \pi/4$	$\tan \pi/3$	$\csc \pi/3$	$\sec 2\pi/3$
$\cot 3\pi/2$	$\sin 3\pi/4$	$\cos 11\pi/6$	$\csc 4\pi/3$	$\cot 7\pi/4$
$\sec 7\pi/6$	$\tan 5\pi/4$	$\csc 3\pi/4$	$\cos 5\pi/3$	$\sin \pi$