

OAKLAND CUSD #5

PRE-CALCULUS

APRIL 13-17, 2020

WILLIAM SEWELL

Week: April 13-17, 2020

Teacher: William Sewell

Communication: email: william.sewell@oakland5.org or Google Hangout-Meet

Office hours: Monday and Wednesday: 12:00 to 2:00 p.m., Tuesday and Thursday: 12:00 to 1:00 p.m.

Due Date: All assignments are due 4/20/2020 either by sending a picture of it and turning it into Google Classroom or turning it into the office.

Assignments: All assignments will be in "Google Classroom" and a paper copy will be provided from the Oakland main office. I will have office hours as listed above which we can review the assignments given and I will help you as much as needed. However, the expectation is the same as it was before. I expect you to have made a serious effort to complete the assignment, before asking for help. You will not learn anything with me just giving you the answers.

Class	Choice 1	Choice 2	Choice 3 (Enrichment)
Earth Science	Chapter 25 Test, p.45-47	Collect 15 different rock samples. Take pictures or draw each and describe them: shape, various colors, size, sharp sides/ smooth, etc.	Take pictures of the moon and record the cycle that it is in from Monday through Friday. Please use the given table to complete.
Physical Science	Chapter 13: Review Worksheet, p.35-36, and the Chapter Test, p.37-38	Record your (not family) water usage throughout the week. Please use the given table to complete.	Do speed lab of races. Record your distance and time yourself. Please use the given table to complete.
Chemistry	Unit 4 Test (To be completed with notes and other resources)	Unit 5: Relative Mass Lab video and write-up	Do the Unit 5 worksheet entitled "The Mole". Use dimensional unit conversions to complete.
Pre-calculus	Complete Composite Functions Unit Test Version 2 on Khan or paper version.	Complete a worksheet on matrices.	Watch videos on Inverse trigonometric functions and do 8 problems for the exercises. They will be assigned in Khan academy.

Inverse Trig Functions

Date Apr. 13-17 Period _____*Sewell/ Pre-Calc/ Choice 3/ p. 1 of 2*

1) $\tan^{-1}(-\sqrt{3})$

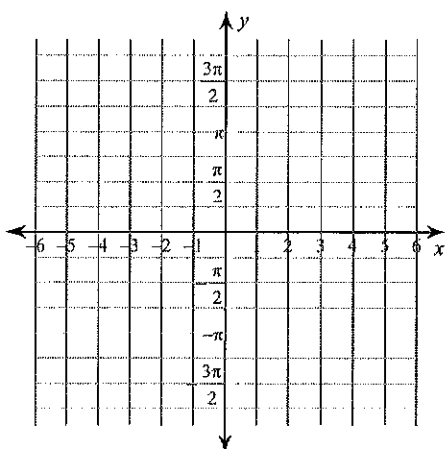
2) $\cos^{-1} -\frac{\sqrt{3}}{2}$

3) $\sin^{-1} -\frac{1}{2}$

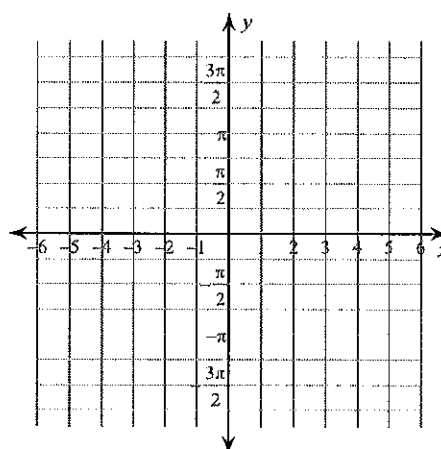
4) $\csc^{-1} \frac{2\sqrt{3}}{3}$

Identify the domain and range of each. Then sketch the graph.

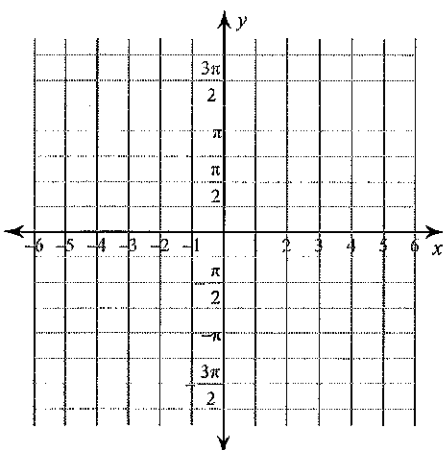
5) $y = \tan^{-1} 3x$



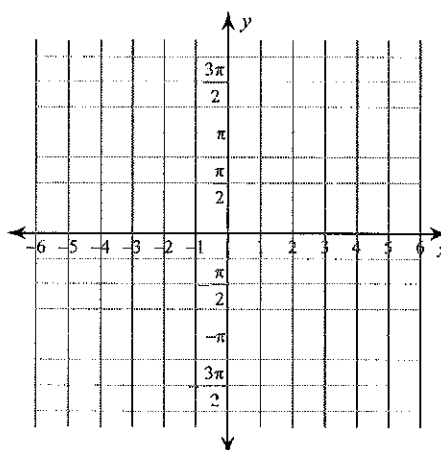
6) $y = \cos^{-1} x - 2$



7) $y = \sec^{-1}(x + 1)$



8) $y = \sin^{-1} \frac{x}{3}$



Find the exact value of each expression.

9) $\csc^{-1}(\cos 0)$

10) $\cos \sec^{-1} \frac{2\sqrt{3}}{3}$

11) $\csc \sec^{-1} \frac{\sqrt{6}}{2}$

12) $\sin^{-1}(\sec 0)$

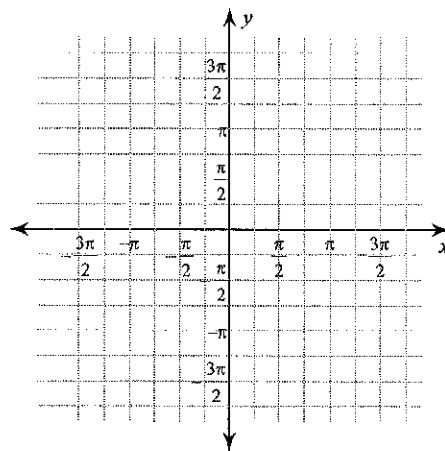
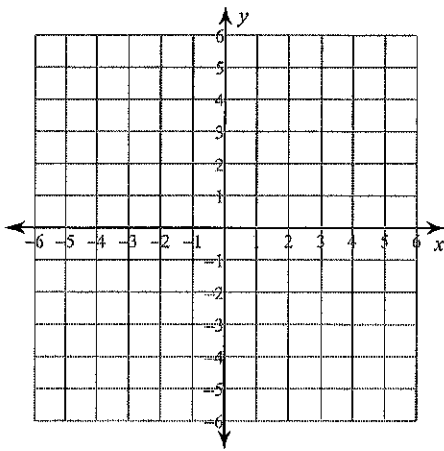
13) $\sec \cot^{-1} \frac{2\sqrt{21}}{21}$

14) $\tan^{-1}(\sec \pi)$

Identify the domain and range of each. Then sketch the graph.

15) $y = \sin \cot^{-1} x$

16) $y = \tan^{-1}(\cot x)$



Write each trigonometric expression as an algebraic expression.

17) $\sin \tan^{-1} x$

18) $\csc \cot^{-1} x$

19) $\sec \cot^{-1} x$

20) $\sec \cos^{-1} x$

Composite Test Version 2

$$f(x) = \frac{1}{8x + 3}$$

$$g(x) = 12 - 5x$$

Write $f(g(x))$ as an expression in terms of x .

$$f(g(x)) = \boxed{}$$

The tables below show some inputs and outputs of functions g and h .

x	-10	-8	-3	2	3	5
$g(x)$	-17	-13	-3	7	9	6

x	-4	-3	-1	0	3
$h(x)$	6	2	-6	-10	-14

$$g(h(-3)) = \boxed{}$$

$$g(x) = \frac{8x - 1}{x + 4}$$

$$h(x) = 3x + 10$$

Write $(g \circ h)(x)$ as an expression in terms of x .

$$(g \circ h)(x) = \boxed{}$$

The tables below show some inputs and outputs of functions g and h .

x	1	4	9	16	25	36
$g(x)$	1	2	3	4	5	6

x	5	10	15	20	25	30
$h(x)$	1	2	3	4	5	6

$$(h \circ g)(25) = \boxed{}$$

Date

$$f(x) = 8x - 7 \text{ and } h(x) = \frac{x+7}{8}$$

Write simplified expressions for $f(h(x))$ and $h(f(x))$ in terms of x .

$$f(h(x)) = \boxed{}$$

$$h(f(x)) = \boxed{}$$

Are functions f and h inverses?

Choose 1 answer:

A Yes

B No

$$g(x) = 11 - \frac{x}{4} \text{ and } h(x) = -4(x - 11)$$

Write simplified expressions for $g(h(x))$ and $h(g(x))$ in terms of x .

$$g(h(x)) = \boxed{}$$

$$h(g(x)) = \boxed{}$$

Are functions g and h inverses?

Choose 1 answer:

A Yes

B No

$$f(x) = x^2 - 6x + 3$$

$$g(x) = \sqrt{x-2}$$

$$f(g(11)) = \boxed{}$$

$$f(a) = 3(a+2)^2 - 10$$

$$g(b) = \frac{2}{5}b + 4$$

$$g(f(-2)) = \boxed{}$$

Matrix Operations

Date Apr. 13-17 Period _____Simplify. Write "undefined" for expressions that are undefined. *Sewell/ Pre-Calc/ Choice 2/ p.1 of 2*

1) $-4 \begin{bmatrix} 5 & 1 \\ 6 & 0 \end{bmatrix}$

2) $\begin{bmatrix} 6 & -5 & 3 & -5 \end{bmatrix} + \begin{bmatrix} 1 & 0 & 1 & 0 \end{bmatrix}$

3) $-4w \begin{bmatrix} -w & -4+u & 0 \\ v & 5v & 3wv \end{bmatrix}$

4) $\begin{bmatrix} -4 & -5 & 5 \\ 1 & 6 & 3 \\ -2 & 2 & 1 \end{bmatrix} - \begin{bmatrix} -6 & -1 & -6 \\ 6 & -3 & -2 \\ 4 & -1 & -3 \end{bmatrix}$

5) $\begin{bmatrix} -5wu \\ 6 \\ v-1 \end{bmatrix} - \left(\begin{bmatrix} -5v \\ 6v \\ 5u+6 \end{bmatrix} - \begin{bmatrix} -3v \\ -5 \\ 3vu \end{bmatrix} \right)$

6) $\begin{bmatrix} -3y & 3x \\ -2 & -4x+2 \\ y^2 & 2x \end{bmatrix} - \begin{bmatrix} x & x-2 \\ 4 & y \\ x-1 & xy \end{bmatrix}$

7) $\begin{bmatrix} -4b \\ 2b \\ 6b \end{bmatrix} + 2 \begin{bmatrix} 3a \\ ab \\ a+4 \end{bmatrix}$

8) $-5 \left(\begin{bmatrix} 1 & 0 \\ -2 & -3 \\ 6 & -6 \end{bmatrix} + \begin{bmatrix} -5 & 4 \\ -6 & 0 \\ 4 & 4 \end{bmatrix} \right)$

$$9) \begin{bmatrix} 3 & -3 \\ 6 & 3 \end{bmatrix} \cdot \begin{bmatrix} 2 & 6 & 1 \\ 6 & -5 & 4 \end{bmatrix}$$

$$10) \begin{bmatrix} 3 & 1 \\ -3 & -4 \end{bmatrix} \cdot \begin{bmatrix} 1 & -3 \\ -4 & -1 \end{bmatrix}$$

$$11) \begin{bmatrix} 3 & 2 \\ 2 & 1 \\ 3 & 4 \\ -1 & -1 \end{bmatrix} \cdot \begin{bmatrix} 0 & 0 \\ 2 & -6 \end{bmatrix} \cdot \begin{bmatrix} -2 & 6 \\ 0 & 0 \end{bmatrix}$$

$$12) \begin{bmatrix} 4 & -2 \\ -3 & 6 \end{bmatrix} \cdot \left(\begin{bmatrix} 4 & -5 & 4 & 0 \\ 6 & 3 & 0 & -3 \end{bmatrix} \cdot \begin{bmatrix} 2 & 0 \\ -6 & -1 \end{bmatrix} \right)$$

$$13) \begin{bmatrix} 5ab & -1 & 0 \\ ba & 5b & -1 \end{bmatrix} \cdot \begin{bmatrix} b \\ 4 \\ 2b \end{bmatrix}$$

$$14) \begin{bmatrix} 6u & 2u & u^2 \\ uv & v^2 & -2v^2 \end{bmatrix} \cdot \begin{bmatrix} -3u & 1 \\ 6u & 3v \\ -6u & v \end{bmatrix}$$

Critical thinking questions:

15) Give an example of a matrix X that would make the expression AX defined where A is a 5×7 matrix.

16) How many multiplications of two numbers would be required to multiply a 3×5 matrix by a 5×10 matrix?