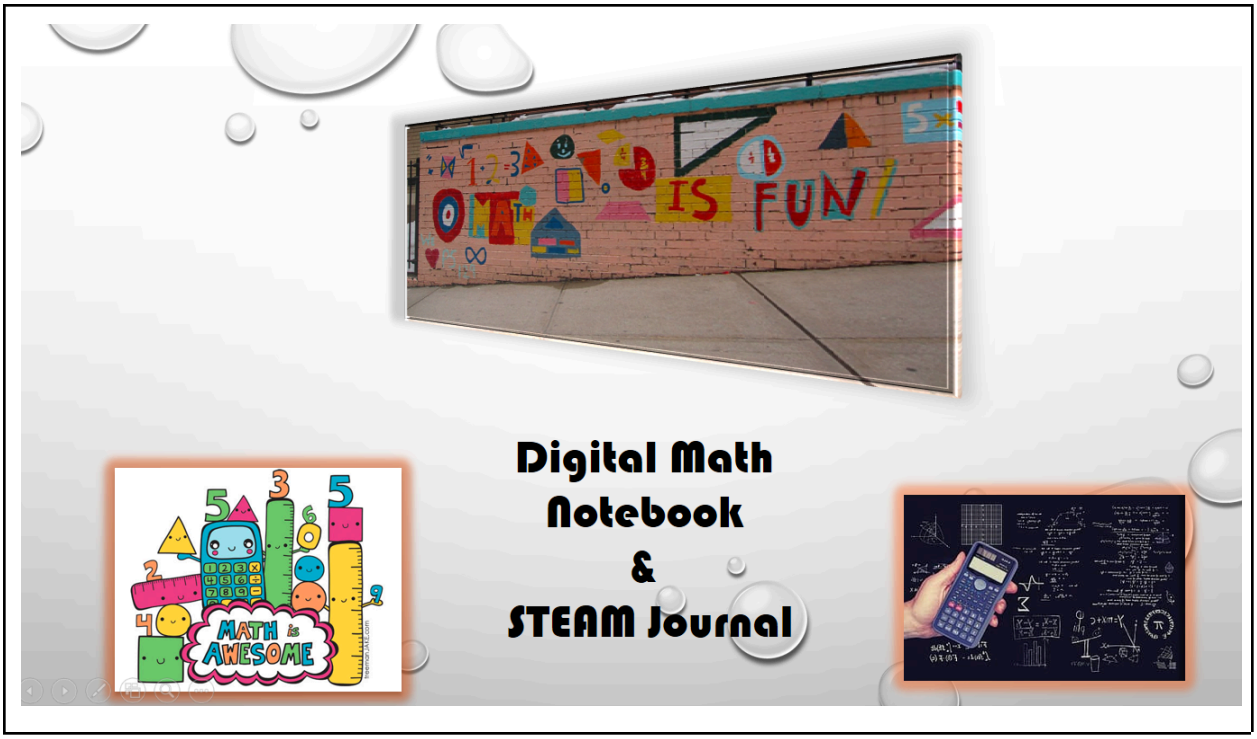
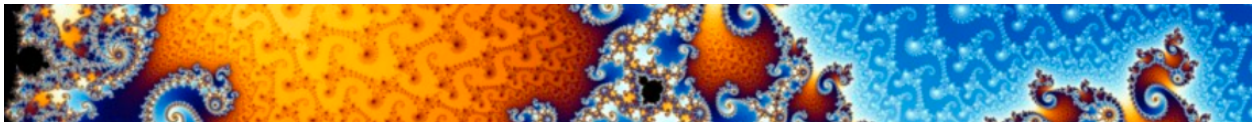

IS FUN!
Digital Math
Notebook
&
STEAM Journal
MATH is AWESOME

Table of Contents



Week 1: 7/27 - 7/30

Links to/Photos of your work - include links to/photos of all work for the week in this section

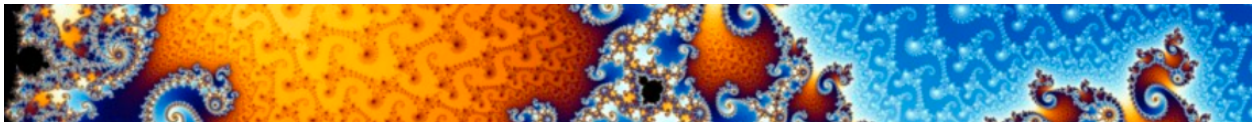
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used technology to set up our virtual math notebooks.

2) How did you use math outside of math class this week?

In art this week we talked about the dimensions of our sketchbook and the weight and heaviness of the paper within it.



Week 2: 8/2 - 8/6

Links to/Photos of your work - include links or photos of all work for the week in this section

Lindsey's Week 2 Mathwork

(Week 2 Day 1 comes at the end of the list)

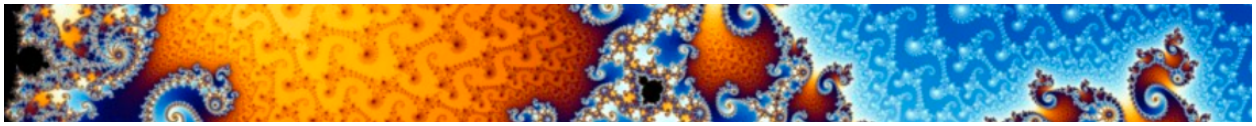
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used advanced online scientific calculators to solve some of the trig problems.

2) How did you use math outside of math class this week?

In science this week, we measured the mass of paper towels after they were drenched in water.



Week 3: 8/9 - 8/13

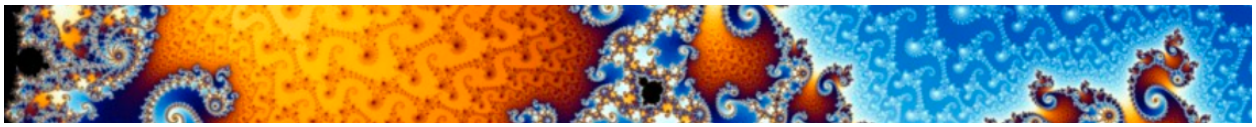
Links to/Photos of your work - include links or photos of all work for the week in this section

Lindsey's Math Week 3

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?
Surveyors who are engineers use trigonometry to solve distance problems of the fields.

2) How did you use math outside of math class this week?
In biology, we used binary fission, which is when cells multiply by splitting into two.



Week 4: 8/16 - 8/20

Links to/Photos of your work - include links or photos of all work for the week in this section

Trig PbRL

Math Work 4

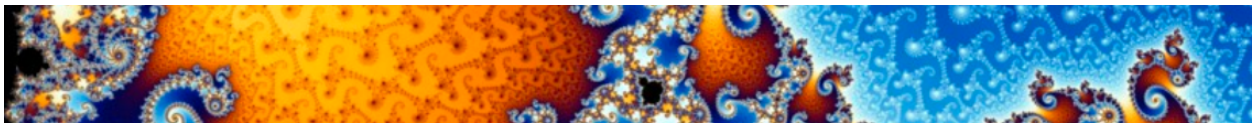
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used digital clinometers to determine the angle of elevation.

2) How did you use math outside of math class this week?

We measured growth over time which is the rate of change.



Week 5: 8/23 - 8/27

Links to/Photos of your work - include links or photos of all work for the week in this section

Unit 2 lesson 1

4a) $\frac{5\pi}{6}$ 4B) $\frac{4\pi}{3}$ 4C) $124\left(\frac{\pi}{180}\right) = \frac{31\pi}{45}$ 4D) $75p\left(\frac{\pi}{180}\right) = \frac{25\pi}{6}$

4B) $\frac{4\pi}{3}$

4C)

5a) $\frac{7\pi}{3} \times \left(\frac{180}{\pi}\right) = 7 \cdot 60 = 420°$ 5B) $\frac{8\pi}{11} \times \left(\frac{180}{\pi}\right) = 130.90°$ 5C) $1.87\left(\frac{180}{\pi}\right) = 107.14°$

5D) $\frac{15\pi}{4} \times \frac{180}{\pi} = 15(45) = 675°$ 5E) $-\frac{\pi}{5} + \frac{10\pi}{5} = \frac{9\pi}{5} \times \left(\frac{180}{\pi}\right)$ $9(36) = 324°$

FD) $(-2+2\pi)\left(\frac{180}{\pi}\right) = -2\left(\frac{180}{\pi}\right) + 2\left(\frac{180}{\pi}\right) = 114.6°$ 6A) $\sin\frac{\pi}{3} = \frac{\sqrt{3}}{2}$

6B) $\cos^{-}\frac{\sqrt{2}}{2}$ 6C) $\tan\frac{\sqrt{3}}{2} / \frac{1}{2} = \frac{-1}{\sqrt{3}}$ 7a) $\sin(x+\pi) = -0.361$

7.

7a2) -0.361 7a3) -0.361 7B1) P 7B2) $-P$ 7B3) P

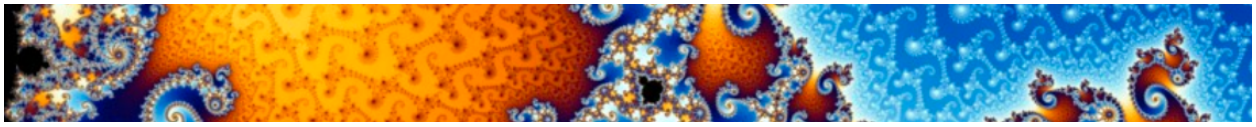
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used technology to solve math problems on IXL

2) How did you use math outside of math class this week?

I used art because I used a ruler to measure my lines.



Week 6: 8/30 - 9/3

Links to/Photos of your work - include links or photos of all work for the week in this section

Lindsey's week 6 work

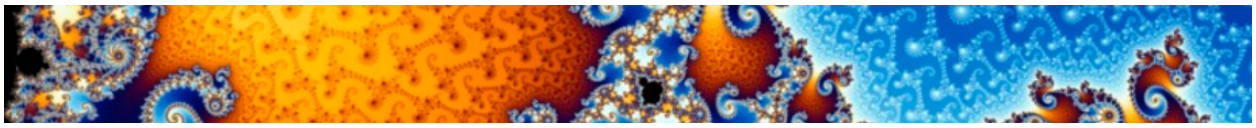
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

This week we used science to find wavelengths.

2) How did you use math outside of math class this week?

In photography we used different angles and distances to get our photos.



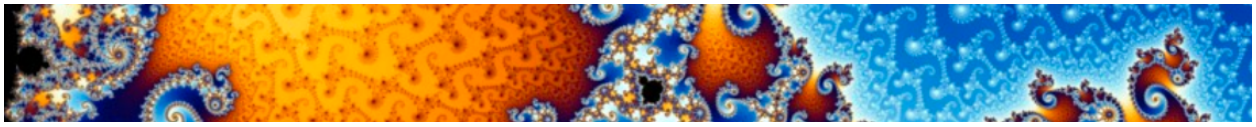
Week 7: 9/7 - 9/10

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



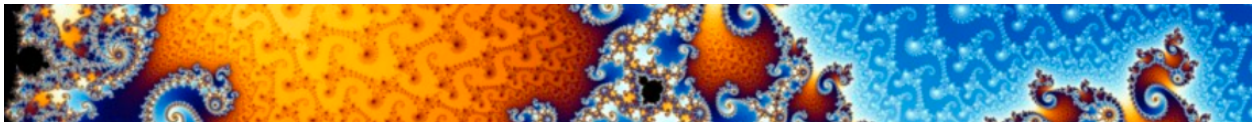
Week 8: 9/13 - 9/17

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



Week 9: 9/20 - 9/24

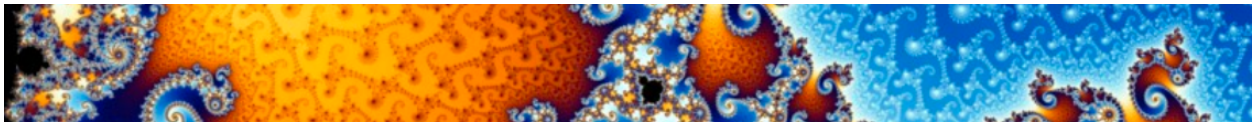
Links to/Photos of your work - include links or photos of all work for the week in this section

Link to worksheet: https://kami.app/8xa-Hfz-E2y

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?
- We used technology (demos) to evaluate inverse trig functions

2) How did you use math outside of math class this week?
- We studied patterns in the US census over the years.



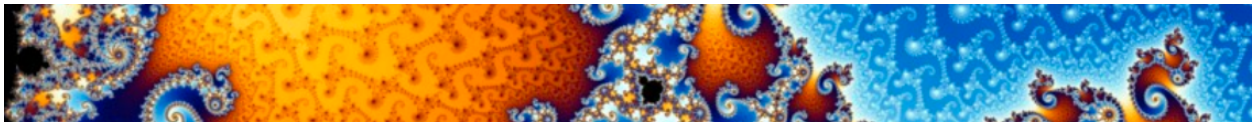
Week 10: 9/27 - 10/1

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



Week 11: 10/11 - 10/15

Links to/Photos of your work - include links or photos of all work for the week in this section

1) $\frac{\sqrt{2}+\sqrt{6}}{4}$

2) $\frac{-\sqrt{6}+\sqrt{2}}{4}$

3) $\frac{-\sqrt{6}+\sqrt{2}}{4}$

4) $\frac{\sqrt{6}-\sqrt{2}}{4}$

5) $33/65$

6) $\frac{9-8\sqrt{33}}{65}$

7) $-\sin\theta$

8) $\cos^2(\theta)-\sin^2(\theta)$

9 $\sqrt{3}+2$

10 $\frac{-140}{171}$

1) $\sin(\theta)$
2) $\cos^2(\theta)$
3) $8\cos(\theta)$
4) 0
5) $\cos(\theta)$
6) 2
7) $\sin(\theta)$
8) $1=1$
9) $\cos=\cos$
10) $2=2$
11) $\frac{1+\sin}{\cos(\theta)} = \frac{1+\sin\theta}{\cos\theta}$
12) $\cos\theta+\sin\theta / \cos\theta\sin\theta$
13) $2\sin\theta = 2\sin\theta$
14 $\csc\theta$
15) 1
16 $\cos 2$
17 $\sec\theta$
18 $\sec^2\theta$
19) 1
20) $1=1$
21 $\sec=\sec$
22) $\sec\theta\cdot\csc = \sec\theta\csc\theta$
23 $\tan\theta = \tan\theta$
24 $\sec(x)\cdot\sec(x)$

cos; sin

cos [0, 180], [0, π]

Sin [-π/2], [π/2] 1 + 4

tan [-π/2], [π/2] 2 + 3

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

5

All Sin Tan Class

1. $-\sqrt{3}/2 = 150$
2. $-\sqrt{3}/2 = 300$
3. $-\sqrt{2}/2 = 45$
4. $-\sqrt{3}/3 = 1/2 / \sqrt{3}/2 = 330 = -30$
5. $-1/2 = 330$
6. $-1/2 = 120$
7. $\sqrt{3} = \sqrt{3}/2, 1/2 = \pi/3$
8. $-\frac{\sqrt{3}}{2} = 5\pi/3$
9. $\frac{\sqrt{2}}{2} = \pi/4$
10. $\sqrt{3}/3 = \pi/6$
11. $1/2 = \pi/6$
12. $1/2 = \pi/3$
13. $\tan^{-1}(3.12) = 1.269/\pi$
14.
15. $330; 210 = \sin(\theta) -1/2$
16. $225, 315 = \sin(\theta) \frac{\sqrt{2}}{\sqrt{2}}$
17. $7\pi/4, -3\pi/4$
18. 0, 180, 360
19. 90
20. quadrant 4
21. quadrant 2
22. quadrant 1 + 4
23. qua
24. (1, 1)
25. $(-\pi/2, \pi/2)$
26. $(0, \pi)$

$(-\infty, \infty)$

$(-\pi/2, \pi/2)$

330

A

B

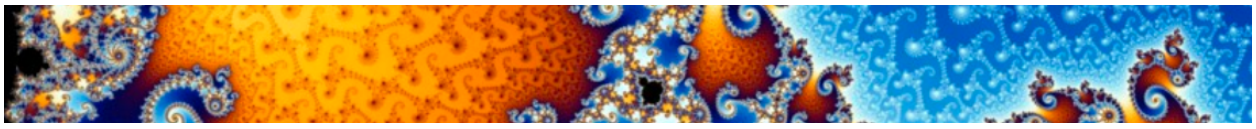
STEAM Journal Entry - reflect on two components of STEAM this week

2) How did we incorporate STEAM in class this week?

We used technology to look at inverse functions

2) How did you use math outside of math class this week?

We measured the death rate of certain species overtime in science.



Week 12: 10/18 - 10/22

Links to/Photos of your work - include links or photos of all work for the week in this section

1 (cos , sin)
2 (cos B, sin B
3 $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y)^2}$

$a = \sqrt{\cos B - \cos A + \sin B - \sin_2)^2}$

$\cos^2 B - \cos 2 \cos B - \cos B \cos B + \cos^2 2$

$2 - 2\cos(B - A) = \sqrt{2 - 2\cos A \cos B - 2\sin A \sin B}$

$\frac{2 - 2\cos B}{-2} = \frac{2 - 2\cos A \cos B - \sin B + \sin_2}{-2}$

$\frac{-2\cos(B-A)}{-2} = \frac{-2\cos A \cos B - 2\sin A}{-2}$

$\cos B - A = \cos A + \cos B + \sin A \sin B$

A = 30, 60, 90, 120

B = 45, 90, 35, 180

$\sin(30+45) = \sin(30)\cos(45) + \cos(30)\sin 45$

$= 1/2 + \sqrt{3}/2$

$= (1/2) + \frac{\sqrt{1}}{2} + \sqrt{3}/2\left(\frac{1}{\sqrt{2}}\right) = \frac{1}{\sqrt{2}\sqrt{2}} + \frac{\sqrt{3}}{\sqrt{2}2} + \frac{1+\sqrt{3}}{\sqrt{2}\,2} \cdot \sqrt{2}$

Lindsey Smith

1) $\tan(\theta)\cdot\cos(\theta) = \frac{\sin(\theta)}{\cos(\theta)}\cdot\frac{\cos\theta}{1} = \frac{\sin\theta}{1} = \sin(\theta)$

2) $\frac{\cos(\theta)}{\sin(\theta)}\cdot\frac{\cos(\theta)}{1}\cdot\frac{\sin(\theta)}{1} = \cos\theta\cdot\cos(\theta) = \cos\theta^2$

3) $\frac{\sin\theta}{1}\cdot\frac{\cos(\theta)}{\sin(\theta)} + \cos(\theta) = \cos\theta + \cos\theta = 2\cos\theta$

4) $\frac{1}{\sin(\theta)}\cdot\frac{\sin(\theta)}{\cos(\theta)} - \frac{1}{\cos} = \frac{1}{\cos\theta} - \frac{1}{\cos(\theta)} = 0$

5) $\frac{\cot(\theta)}{\csc\theta} = \frac{\cos(\theta)}{\sin(\theta)} \Big/ \frac{1}{\sin(\theta)}\cdot\frac{1}{\sin\theta} = \cos(\theta)$

7) $\frac{\tan^2(\theta)\cdot\csc\cdot\cos(\theta)}{\sec(\theta)} = \frac{\tan^2\theta\cdot\csc\theta\cdot\cos\theta}{\frac{1}{\cos(\theta)}\cdot\frac{\cos}{1}} = \tan^2\theta\cdot\csc\cdot\csc\theta\cdot\cos^2$

$= \frac{\sin^2\theta}{\cos^2\theta}\cdot\frac{1}{\sin}\cdot\cos^2\theta =$

9) $\frac{\cot(\theta)}{\csc(\theta)} = \frac{\frac{\cos\theta}{\sin(\theta)}}{\frac{1}{\sin(\theta)}\cdot\frac{\sin(\theta)}{1}}\cdot\frac{\sin\theta}{1} = \cos(\theta) = \cos(\theta)$

11) $\tan(\theta) + \sec(\theta) = \frac{1+\sin(\theta)}{\cos(\theta)}$

$\frac{\sin(\theta)}{\cos(\theta)} + \frac{1}{\cos(\theta)} = \frac{1+\sin(\theta)}{\cos(\theta)} = \frac{\sin(\theta)+1}{\cos(\theta)} = \frac{1\sin(\theta)}{\cos(\theta)}$

13) $\frac{1}{\csc(\theta)} + \tan(\theta)$ $\sin(\theta) + \frac{\sin(\theta)}{\cos(\theta)}\cdot\cos(\theta) = 2\sin\theta$

$2\sin(\theta) = 2\sin\theta$

15) $\sin 2\theta + \sin(\theta)$

17) $\frac{\sin\theta\left(\frac{\cos\theta}{\sin\theta}\right)}{1-\sin 2(\theta)} = \frac{\cos(\theta)}{1-\sin 2\theta}$

Lindsey Smith

20) $\frac{\cot(\theta)\cdot\sin(\theta)}{\cos(\theta)} + \cos(\theta)\cdot\sec(\theta)$

$\frac{\frac{\cos}{\sin}\cdot\sin(\theta)}{\cos(\theta)} + \cos(\theta)\cdot\frac{1}{\cos}$

$1 + \cos(\theta)\cdot\frac{1}{\cos}\quad \frac{\cos}{\cos}=1$

$1+1=2$

20) $\frac{1}{\sin^2(x)} - \frac{1}{\sin(\theta)^2(x)^2}\cos^2(x) = 1$

$1-\cos^2(x) = \sin^2(x)$

$1 = \sin^2(x)+\cos^2(x)$

$1=1$

21) $\frac{\tan(\theta)+\sin(\theta)}{1+\cos(\theta)} = \tan(\theta)$

23) $\tan(\theta)+\sin(\theta) = \tan(\theta)(1+\cos)$

$-\sin(\theta) \qquad -\sin\theta$

$\tan = \tan(\theta)(1+\cos)-\sin(\theta)$

$\tan\theta = \tan\theta\cdot\tan\theta\cos\theta - \sin$

$\tan(\theta) = \tan(\theta)+\tan\theta\cos\theta - \sin$

$\tan(\theta) = \tan\frac{\sin(\theta)}{\cos\theta}(\cos) -$

$\tan = \tan\theta\cdot\sin - \sin$

$\tan = \tan$

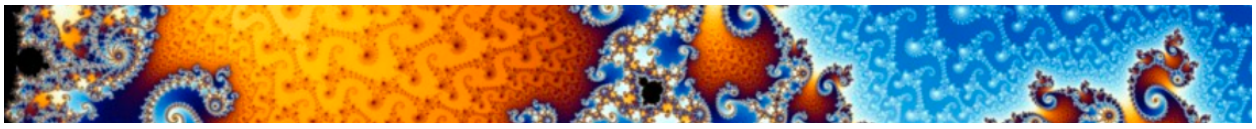
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used technology to look at functions on Desmos

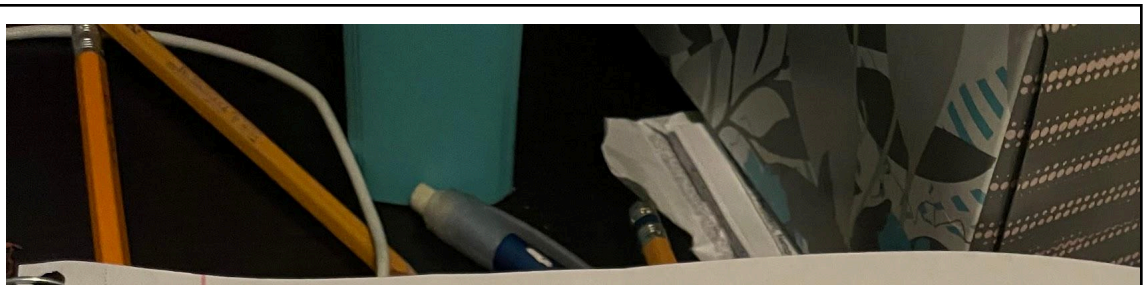
2) How did you use math outside of math class this week?

We used math in art because we had to use proportion to draw. And we used math to pick out the perfect canvas size.



Week 13: 10/25 - 10/29

Links to/Photos of your work - include links or photos of all work for the week in this section



① $\sin(\theta^{\alpha} + \theta)^{B} =$

$\sin(\theta)\cos(\theta) + \cos\theta + \sin(\theta)$

$\sin(\theta)\cos(\theta) + \sin(\theta)\cos(\theta)$

$2(\sin\theta\cos\theta)$

② $\cos(\overset{A}{\theta}+\theta)^{B}$

$\cos(\theta)\cos(\theta) - \sin(\theta)\sin(\theta)$

③ $\cos(2a) = 1 - \sin^2 A - \sin^2 A = 1 - 2\sin A$

$\sin^2 a = \cos(2A = 1 - 2(1 - \cos^2) = 1 \pm 2 + 2\cos^2 A = -1 + 2\cos^2 A$

$= 2\cos^2 A - 1$

④ $\tan(\theta) + \theta) = \dfrac{\tan\theta + \tan(\theta)}{1 - \tan(\theta)\tan(\theta)} = \dfrac{2\tan(\theta)}{1 - \tan^2\theta}$

5) $\sin 2\theta = 2\sin(\theta)\cos(\theta)$

A) $= 2(5/13)\cos(\theta)$

$= 2\left(\frac{5}{13}\ \frac{12}{15} = \frac{120}{169}\right)$

$5^2 + b = 13^2$

$25 + b = 169$

$144 = 12$

$b = 12$

3 $2\cos^2\theta = -1$

$\tan(2\theta) = \dfrac{2(5/12)}{1 - (5/12)^2}$

B $\frac{119}{169}$

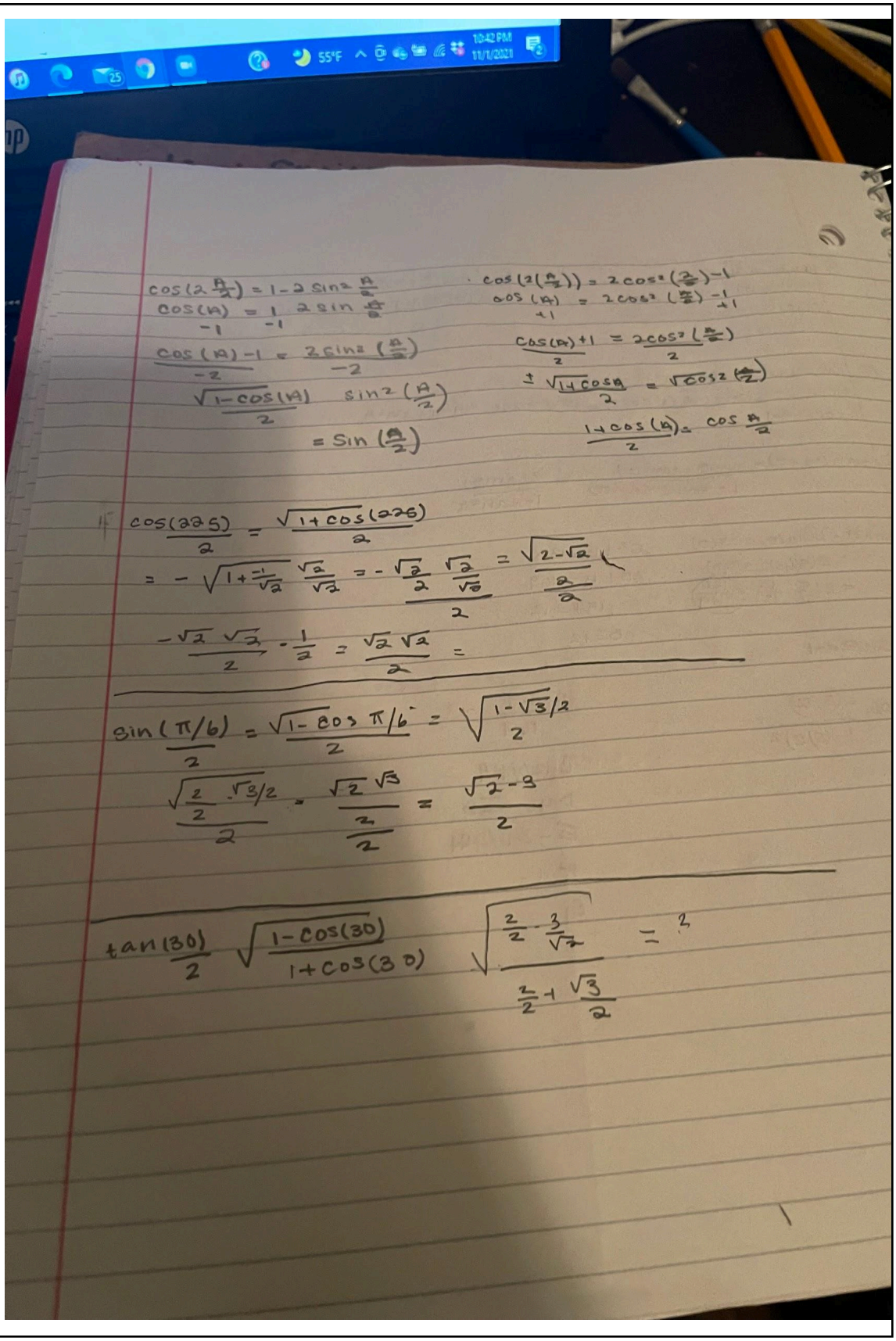
C $120/119$

D $40\sqrt{26}$

E $-391/441$

F

G



$\cos(2\frac{A}{2}) = 1 - 2\sin^2\frac{A}{2}$

$\cos(A) = 1 - 2\sin^2\frac{A}{2}$

$\frac{\cos(A)-1}{-2} = \frac{2\sin^2(\frac{A}{2})}{-2}$

$\sqrt{\frac{1-\cos(A)}{2}} \quad \sin^2(\frac{A}{2})$

$= \sin(\frac{A}{2})$

$\cos(2(\frac{A}{2})) = 2\cos^2(\frac{A}{2}) - 1$

$\cos(A) = 2\cos^2(\frac{A}{2}) - 1$

$\frac{\cos(A)+1}{2} = \frac{2\cos^2(\frac{A}{2})}{2}$

$\pm\sqrt{\frac{1+\cos A}{2}} = \sqrt{\cos^2(\frac{A}{2})}$

$\frac{1+\cos(A)}{2} = \cos\frac{A}{2}$

1. $\frac{\cos(225)}{2} = \sqrt{\frac{1+\cos(225)}{2}}$

$= -\sqrt{\frac{1+\frac{-1}{\sqrt{2}}}{2}}\frac{\sqrt{2}}{\sqrt{2}} = -\frac{\sqrt{\frac{2}{2}-\frac{\sqrt{2}}{\sqrt{2}}}}{2} = \frac{\sqrt{2-\sqrt{2}}}{2}$

$\frac{-\sqrt{2}\sqrt{2}}{2}\cdot\frac{1}{2} = \frac{\sqrt{2}\sqrt{2}}{2} =$

$\sin\frac{(\pi/6)}{2} = \frac{\sqrt{1-\cos\pi/6}}{2} = \sqrt{\frac{1-\sqrt{3}/2}{2}}$

$\frac{\sqrt{\frac{2}{2}\cdot\sqrt{3}/2}}{2} \cdot \frac{\sqrt{2}\sqrt{3}}{2} = \frac{\sqrt{2}-3}{2}$

$\tan\frac{(30)}{2}\sqrt{\frac{1-\cos(30)}{1+\cos(30)}}$ $\sqrt{\frac{\frac{2}{2}-\frac{3}{\sqrt{2}}}{\frac{2}{2}+\frac{\sqrt{3}}{2}}} = ?$

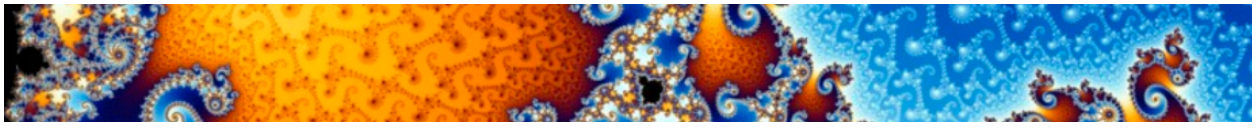
STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

We used desmos calculator to get our solutions

2) How did you use math outside of math class this week?

In world history we talked about how the advancement in certain fields came about because of math and science during the antebellum era.



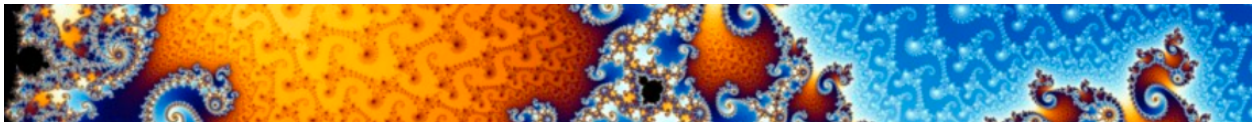
Week 14: 11/1 - 11/5

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



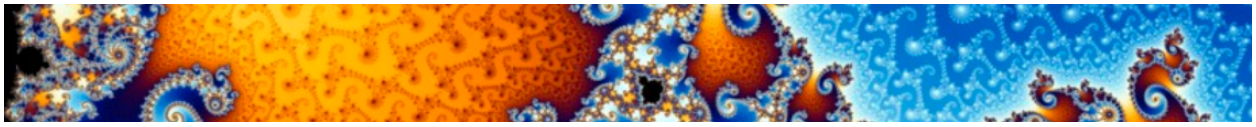
Week 15: 11/8 - 11/12

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



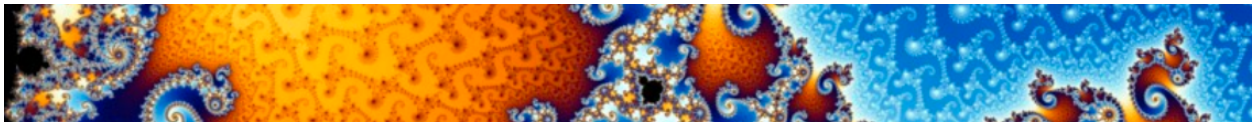
Week 16: 11/15 - 11/19

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



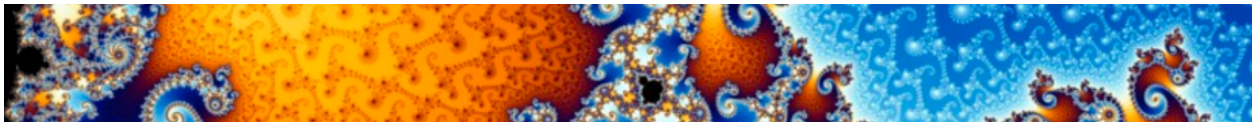
Week 17: 11/29 - 12/3

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



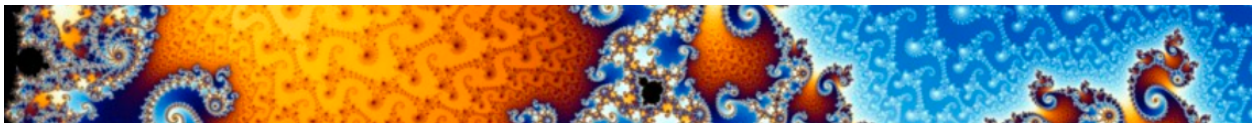
Week 18: 12/6 - 12/10

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



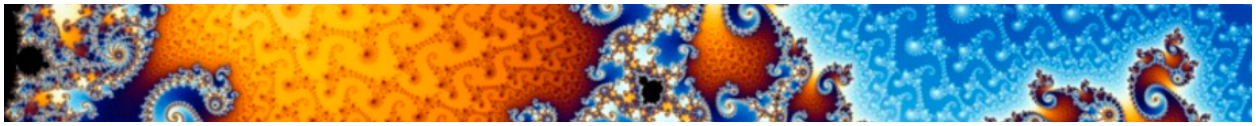
Week 19: 12/13 - 12/17

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1) How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



Week 1: 1/4 - 1/7

Links to/Photos of your work - include links or photos of all work for the week in this section

Maxnices

1) 3x2
2) 1x4
3) 2x4
4) -7
5) $-2+3-(-7) = 8$
6) $3x+x-(y+1) = 3x+x-y-1 = 4x-y-1$
7) $\begin{bmatrix} 5 & 4 \\ -1 & 3 \end{bmatrix}$
8) $\begin{bmatrix} 5 & 1 \\ 2x & 0 \\ 3 & 4 \end{bmatrix}$ [2x3] transposes matrixes [3x2]

Both m+n the same

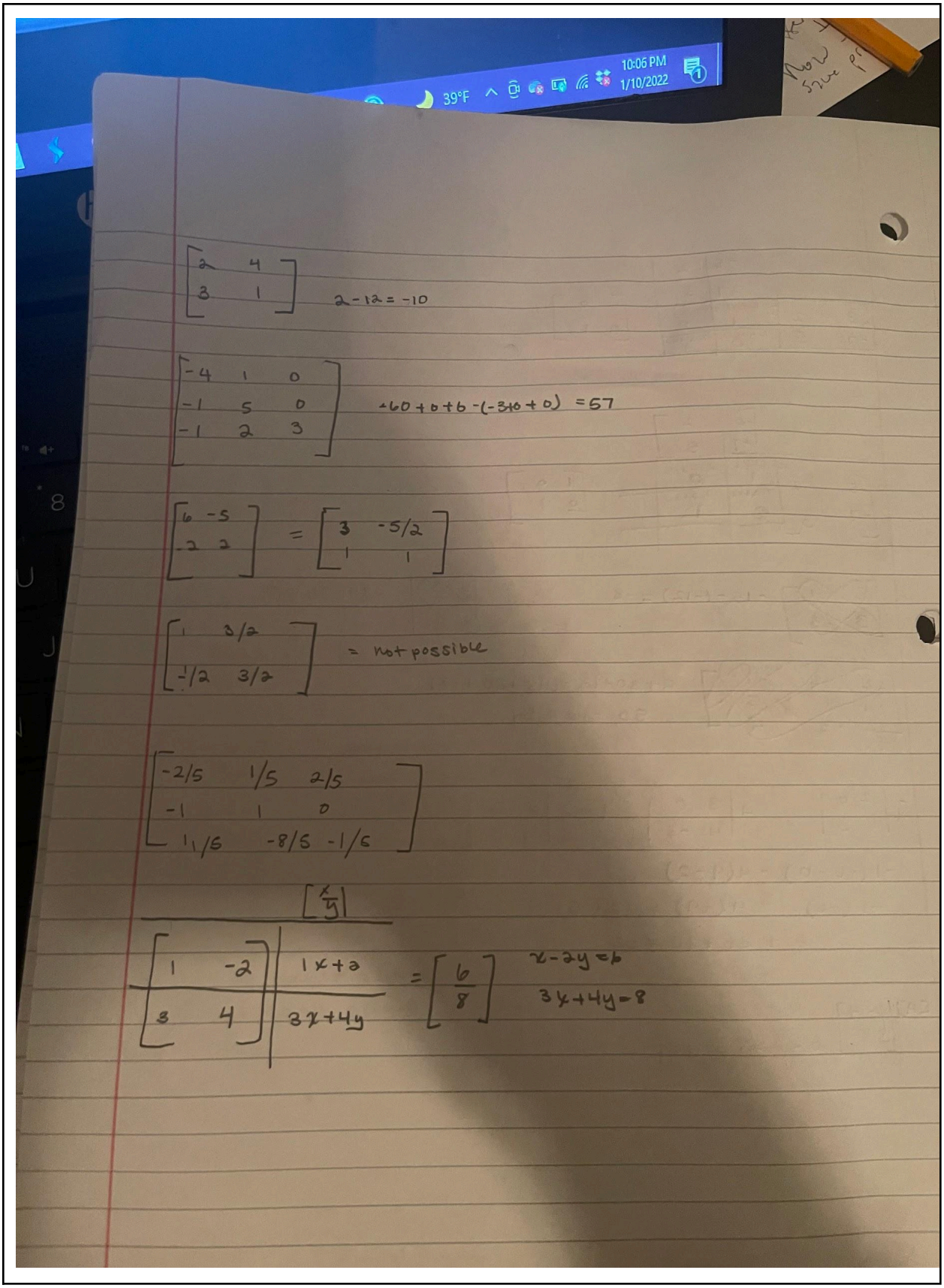
I = identity matrix

$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 & 0 \end{bmatrix}$

$\begin{bmatrix} -6 & 0 & 2 \\ 4 & -16 & -8 \end{bmatrix}$ $\begin{bmatrix} xy & -x \\ 0 & 3x^2 \end{bmatrix}$

$\begin{bmatrix} 4 & -2 \\ 3 & 1 \end{bmatrix} + 2 \begin{bmatrix} 0 & 4 \\ 2 & 3 \end{bmatrix} = \begin{bmatrix} 4 & 6 \\ 7 & 7 \end{bmatrix}$

$3 \begin{bmatrix} 0 & 2 \\ 4 & 3 \end{bmatrix}$ $\begin{bmatrix} 0 & 2 \\ 4 & 3 \end{bmatrix}$ $\begin{bmatrix} 0 & 8 \\ 6 & 6 \end{bmatrix}$



$$\begin{bmatrix} 2 & 4 \\ 3 & 1 \end{bmatrix} \quad 2 - 12 = -10$$

$$\begin{bmatrix} -4 & 1 & 0 \\ -1 & 5 & 0 \\ -1 & 2 & 3 \end{bmatrix} \quad -60 + 0 + 6 - (-30 + 0) = 57$$

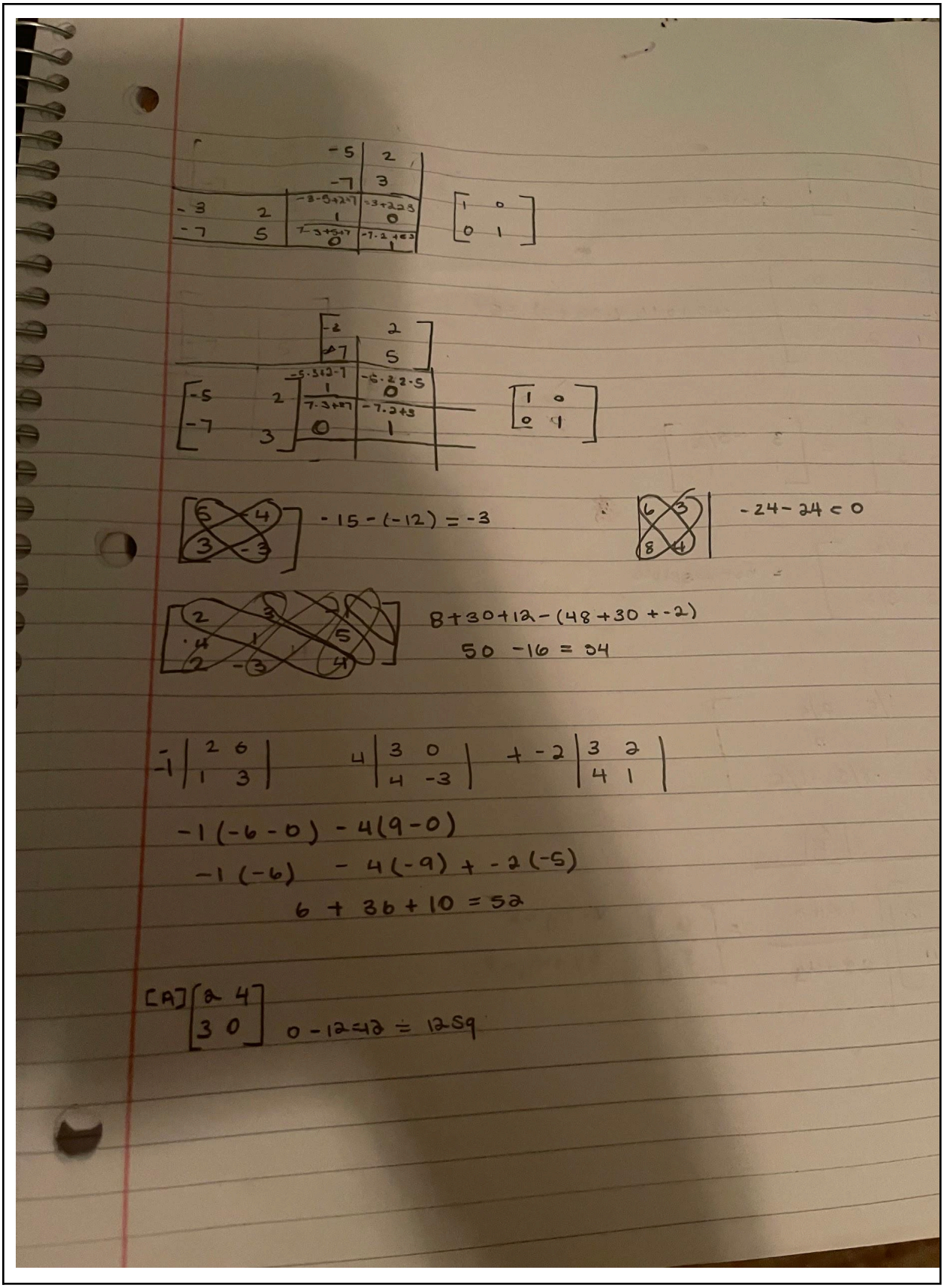
$$\begin{bmatrix} 6 & -5 \\ -2 & 2 \end{bmatrix} = \begin{bmatrix} 3 & -5/2 \\ 1 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 3/2 \\ -1/2 & 3/2 \end{bmatrix} = \text{not possible}$$

$$\begin{bmatrix} -2/5 & 1/5 & 2/5 \\ -1 & 1 & 0 \\ 11/5 & -8/5 & -1/5 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix}$$

$$\left[\begin{array}{cc|c} 1 & -2 & 1x+3 \\ 3 & 4 & 3x+4y \end{array}\right] = \begin{bmatrix} 6 \\ 8 \end{bmatrix} \qquad \begin{array}{l} x - 2y = 6 \\ 3x + 4y = 8 \end{array}$$



7) $\begin{bmatrix} 4 & 4x & 2 \\ 0 & 6 & 8 \end{bmatrix} \quad \begin{bmatrix} 4 & 1 \\ -2 & 3x \\ 3 & -2 \end{bmatrix}$

Dementions don't Allne

$\begin{bmatrix} -8 & 4 \\ -6 & 2 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$ Dementions do align $= \begin{bmatrix} -5 & 4 \\ -6 & 1 \end{bmatrix}$

$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} + \begin{bmatrix} 4 & -2 & 3 \\ 1 & 3x & -2 \end{bmatrix} = \begin{bmatrix} 4 & -2 & 3 \\ 1 & 3x & -2 \end{bmatrix}$

$\begin{bmatrix} x+2 & 8 \\ 2 & 2y+3 \end{bmatrix} = \begin{bmatrix} 5 & 8 \\ 2 & 11 \end{bmatrix}$ $= x+2=5$ $\quad \frac{2y+3=11}{3 \quad 3}$ $\quad x=3$

$\frac{-2 \quad 2}{3}$ $\quad \frac{2y}{2} = \frac{8}{2}$ $\quad y=4$

$2 \quad 2+9=9$

$9=9$

$\frac{2a+3=11}{-3 \quad -3}$ $= a=4$

$\frac{2a}{2} = \frac{8}{2}$ $= b=-4$

$= c=\frac{5}{2}$

$\frac{6+B=2}{-6 \quad -6}$

$B=-4$

$\frac{4C-6+a}{6+6}$

$\frac{4C}{4} = \frac{10}{4}$

A) 2x3

B) Dementions don't align

C) Dementions don't align

D) 2x4

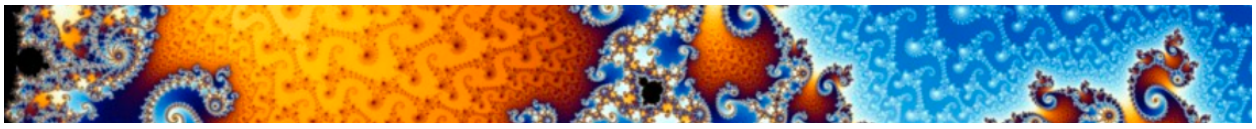
E) 3x3

F) 3x3

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?
We used technology in class when we used the online matrix calculators.

2) How did you use math outside of math class this week?
We used math in art when we used dimensions and proportions to draw our pictures for our crime scene project.



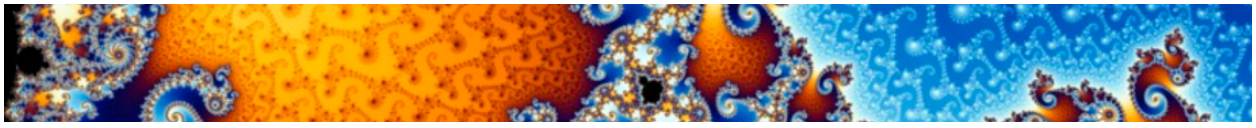
Week 2: 1/10 - 1/14

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



Week 3: 1/17 - 1/21

Links to/Photos of your work - include links or photos of all work for the week in this section

Computer Animation

NAME_____

1. The first step in computer animation is for the animator to create a simplified representation of a character's anatomy, analogous to a skeleton. Enter key points in your image in a $2\times n$ matrix, where the x-coordinate of a point is in the top row, and the y-coordinate of the point is in the bottom row. There will be one column for each point in your shape. Call this matrix S (for "skeleton").

2. Find each product below, and graph the shape that results on a sheet of graph paper. Below each matrix, write a brief description of how the shape is "transformed" by the matrix multiplication. Use geometric terms such as reflection, rotation, stretching, translation. Be as precise as you can, telling where the line of reflection is, or in which direction the rotation occurs.

a) $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix} S =$ $\begin{matrix} 0 & -4 & -3 & -4 & -3 & 0 & 0 & 1 \\ 3 & 4 & 2 & 1 & -1 & -1 & 1 & 2 \end{matrix}$

b) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix} S =$ $\begin{matrix} 0 & 4 & 3 & 4 & 3 & 0 & 0 & 1 \\ 3 & -4 & -2 & -1 & 1 & 1 & -1 & -2 \end{matrix}$

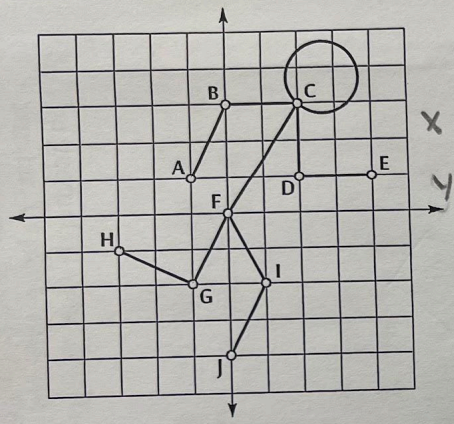
c) $\begin{bmatrix} \frac{3}{5} & -\frac{4}{5} \\ \frac{4}{5} & \frac{3}{5} \end{bmatrix} S =$ $\begin{matrix} -\frac{12}{5} & -\frac{4}{5} & \frac{1}{5} & \frac{8}{5} & \frac{13}{5} & \frac{4}{5} & -\frac{4}{5} & -1 \\ \frac{9}{5} & \frac{28}{5} & \frac{18}{5} & \frac{19}{5} & \frac{9}{5} & -\frac{3}{5} & \frac{3}{5} & 2 \end{matrix}$

d) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} S =$ $\begin{matrix} 3 & 4 & 2 & 1 & -1 & -1 & 1 & 2 \\ 6 & 4 & 3 & 4 & 3 & 0 & 0 & 1 \end{matrix}$

e) $\begin{bmatrix} 2 & 0 \\ 0 & 4 \end{bmatrix} S =$ $\begin{matrix} 0 & 8 & 6 & 8 & 6 & 0 & 0 & 2 \\ 12 & 16 & 8 & 4 & -4 & -4 & 4 & 8 \end{matrix}$

3. The geometric descriptions you wrote for the transformations in Questions 2a and 2b are fairly similar. Explain why this makes sense, based on the matrices used. (**Hint:** Think about the process you used to find the matrix product.) They are fairly the same seeing as the negative one is located in opposite positions therefore the negative will be applied to the opposite ro only

The Runner

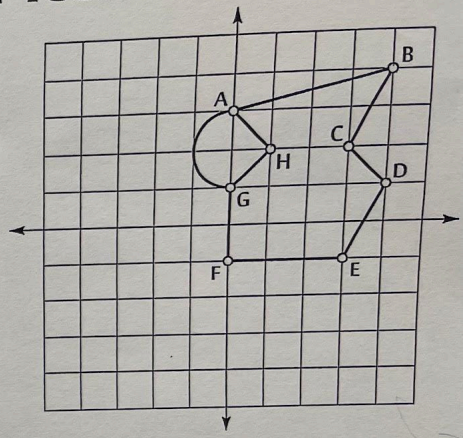


A B C D E F G H

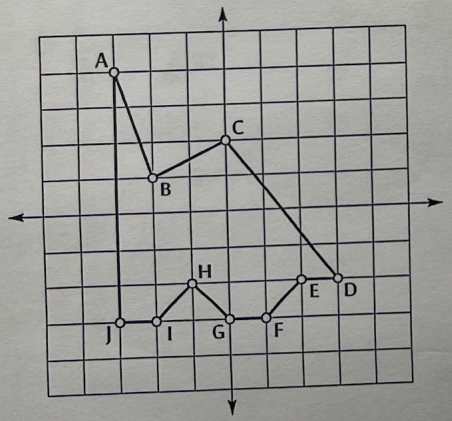
X 0 4 3 4 3 0 0 1

Y 3 4 2 1 -1 -1 1 2

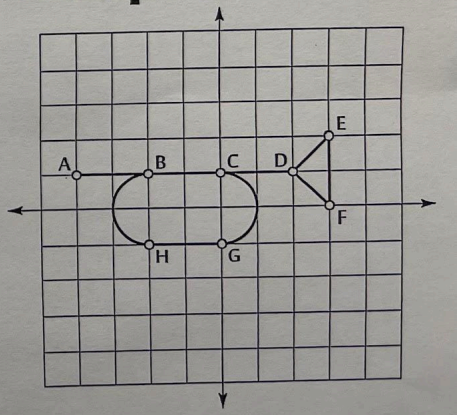
The Pitcher



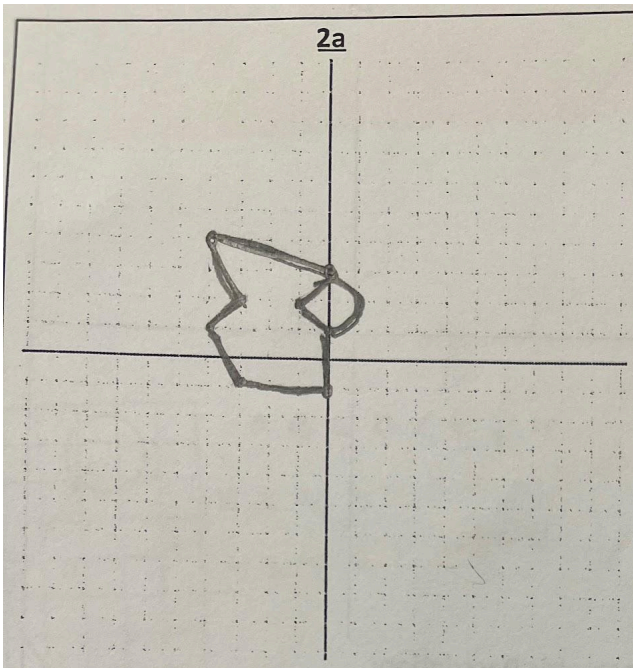
The Dinosaur



The Trumpet

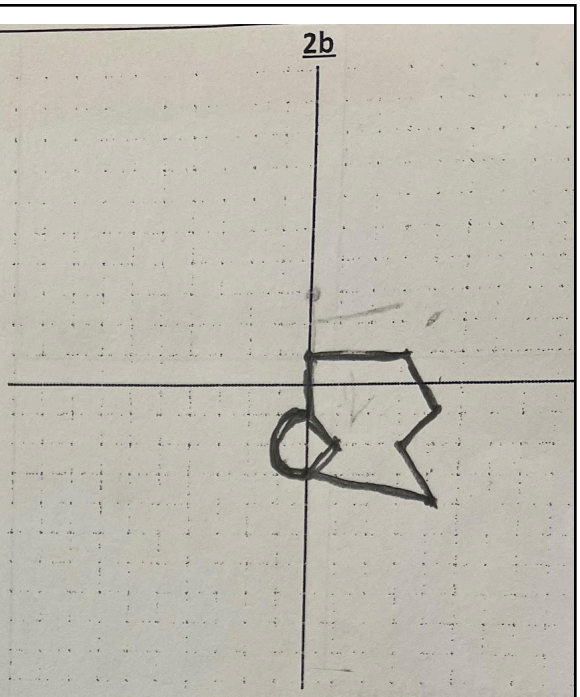


2a



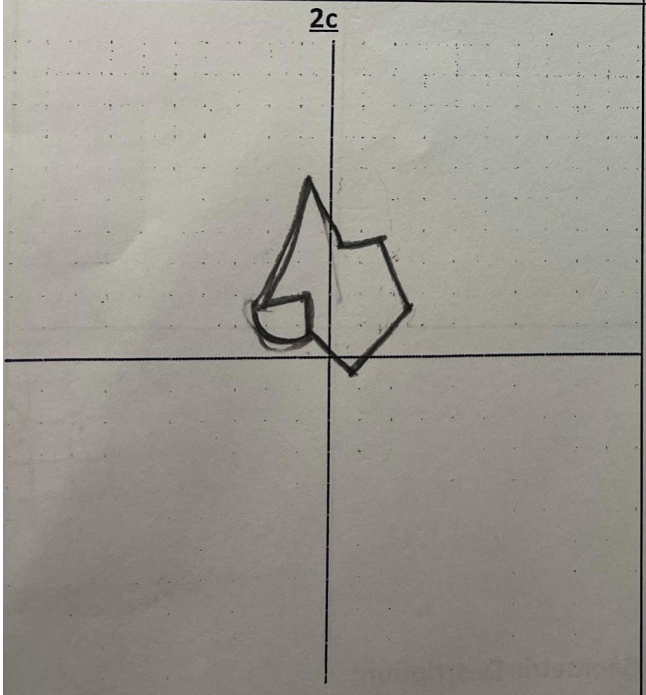
Geometric Description:

2b



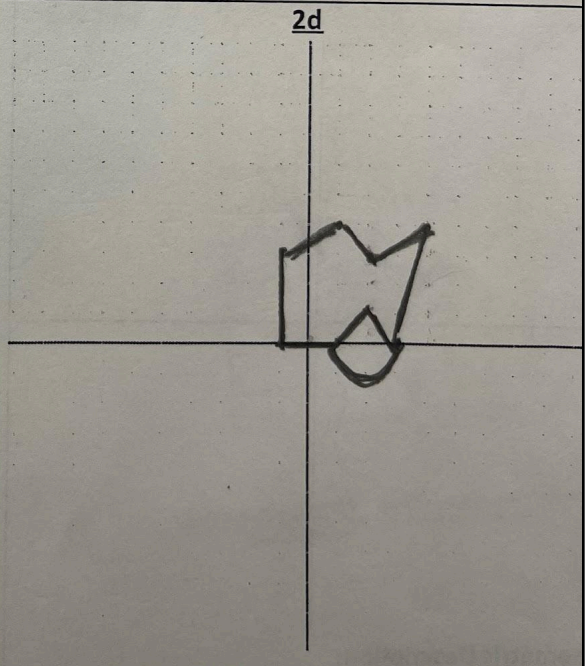
Geometric Description:

2c



Geometric Description:

2d



Geometric Description:

1) 82(0) + 25(0) + 26(1.2) + 28(0.70) + 22(0.26) + 15(0.6) = 64.75 = 65

2) 64.75 — 30(0.6) = 18 — 25(.85) = 21.25 — 26(.9) = 23.4 — 28(.8) = 22.4 — 22(.50) = 11
64 — 18 — 21.25 — 23.4 — 22.4

3) 64.75(0) + 18(0) + 12.25(1.2) + 23.14(0.7) + 22.4(.6) + 11.(0.6)

4) 55.87 — 64.75(.6) = 38.85 — 21.25(.85) = 15.3 — 21.25(.9) = 19.125 — 23.4(.8) = 18.72 — 22.4(.5) = 11.2

5) [P] = [85 25 26 28 22 15]

[L] = $\begin{bmatrix} 0 & 6.5 & \cdot & 0 & 6 \\ 0 & 0 & .85 & 0 & 0 \\ 1.2 & 0 & \cdot & \cdot & \cdot \\ 0.7 & 0 & \cdot & .09 & 0 \\ 0.6 & 0 & 0 & 0.8 & 6 \\ 0.05 & 0 & 0 & 0 & .5 \end{bmatrix}$

80(0) + 25(0) + 26(1.6) + 28(0.7)

we could find the population in 2010 $P_1 = [P] \cdot [L]$ and the population in 2012 $P = [P][L]$

10 population [P][L]	64.75	18	21.25	23.4	11.2
12 population [P][L]	55.87	38.85	15.3	18.72	11

age groups in years

$\frac{64.75}{2} = 60.08$ $\quad \frac{18.38.}{2}$ $\quad \frac{21.25 + 15.3}{2}$ $\quad \frac{28.9 + 19.125}{2}$ $\quad 2$

https://drive.google.com/file/d/1yhWTq676M-QhYdA50RhriApMFWv6bDn-/view?usp=drivesdk

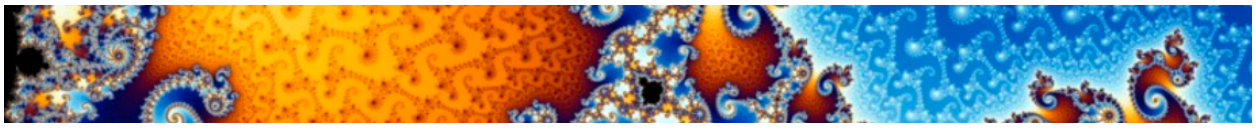
STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

We used Technology for the stop motion

2) How did you use math outside of math class this week?

We used math in photography when we had the rule of 3/5ths to take photos.



Week 4: 1/24 - 1/28

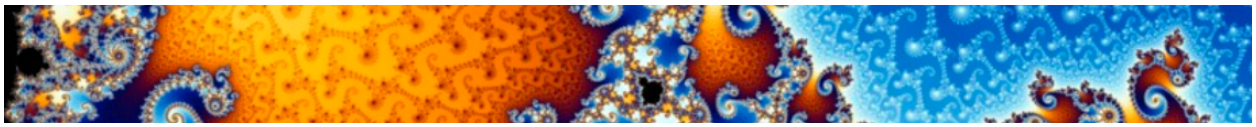
Links to/Photos of your work - include links or photos of all work for the

week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



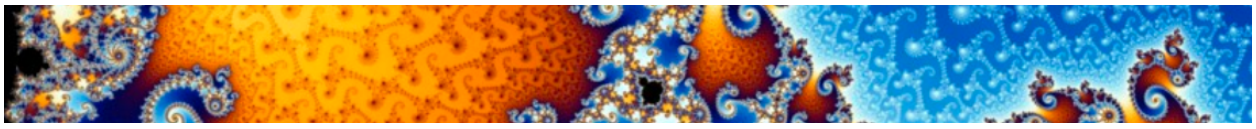
Week 5: 1/31 - 2/4

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



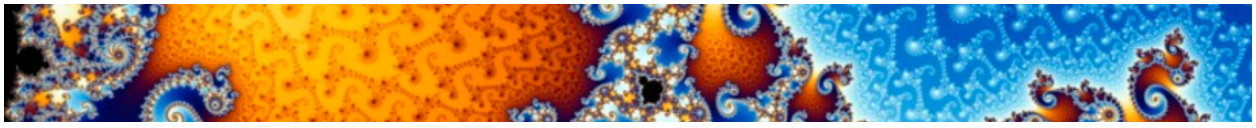
Week 6: 2/7 - 2/11

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



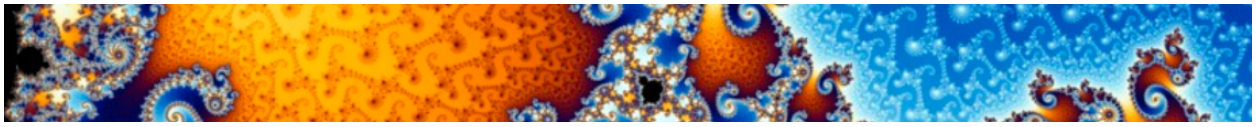
Week 7: 2/21 - 2/25

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



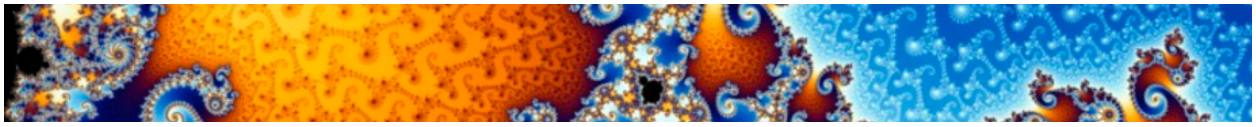
Week 8: 2/28 - 3/4

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



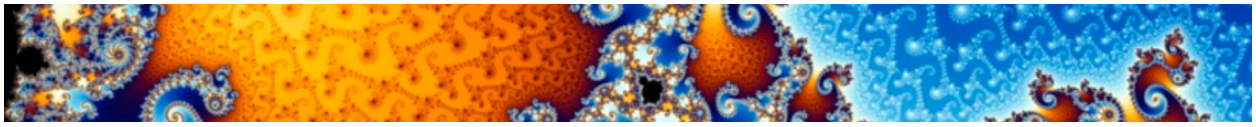
Week 9: 3/7 - 3/11

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



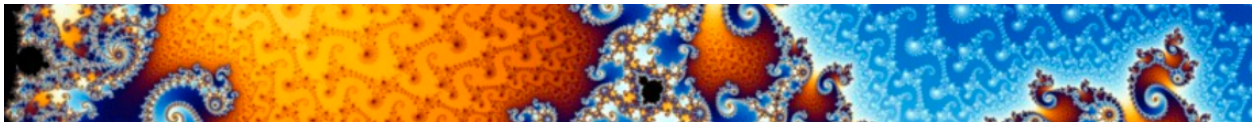
Week 10: 3/14 - 3/18

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



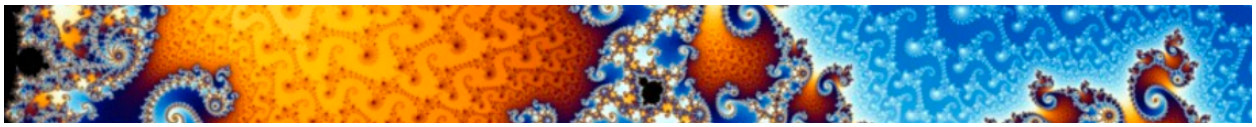
Week 11: 3/21 - 3/25

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



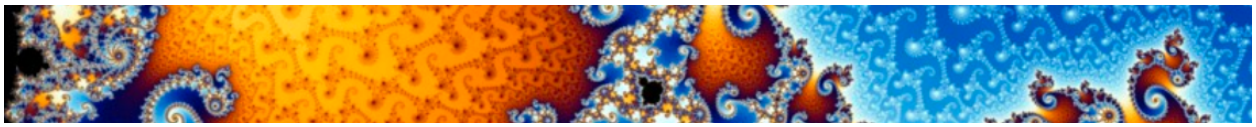
Week 12: 3/28 - 4/1

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



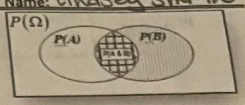
Week 13: 4/11 - 4/15

Links to/Photos of your work - include links or photos of all work for the week in this section

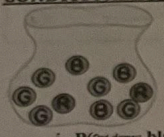
See 8.4– Applications of Probability
Conditional Probability

Name: Lindsey Smith

$P(A \mid B)$ asks that we find the probability of A given that we know B has or already occurred. Using a formula find the probability of A given B can be found using $P(A \mid B) = \frac{P(A \text{ and } B)}{P(B)}$



CONDITIONAL PROBABILITY



1. Determine the following **conditional** probabilities.

Consider a bag with marbles, 3 blue marbles, 2 red marbles, and 5 green marbles. Three marbles are drawn in sequence and are taken without replacement.

i. P(2nd draw: **blue** | 1st draw: **red**) = Reduced Fraction: 3/3

2/10 3/9 2 and 1st — 2/10 · 3/9 = 6/90

ii. P P(2nd draw: **blue** | 1st draw: **blue**) = Reduced Fraction: 2/9

3/10 · 2/9 = 3/16

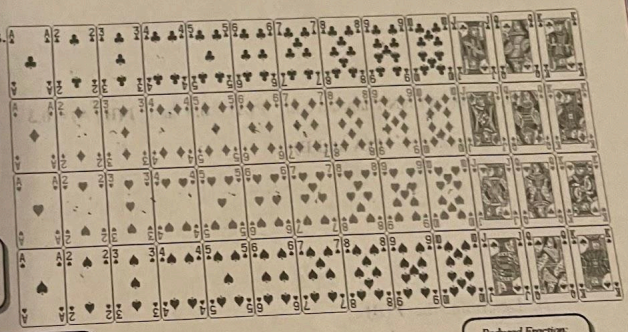
iii. P(3rd draw: **blue** | 1st draw: **red**, 2nd draw: **blue**) = Reduced Fraction: 1/4

6/90 = 2/10 = P 2/10 · 3/9 · 2/8 / 2/10 · 3/9

ii. P P(3rd draw: **blue** | 1st draw: **red**) = Reduced Fraction: 0

2. Determine the following **conditional** probabilities.

Consider drawing 1 card from a standard deck of shuffled cards:



i. P(Queen | Face Card) = Reduced Fraction: 1/3

4/52 / 12/52 = 4/12

ii. P(Ace | Lettered Card) = Reduced Fraction: 1

4/52 / 4/52

iii. P(Heart with a Number | Red Card) = Reduced Fraction: 9/26

9/52 / 26/52

iv. P(Card with a Letter| King) = Reduced Fraction: 1

4/52 / 4/52

v. P(number less than 6 | Face Card) = Reduced Fraction: 0

vi. P(Odd Number | Numbered Card) = Reduced Fraction: 4/9

16/52 / 36/52 = 16/36

3. Consider the following table with information about all of the students taking Statistics at Phoenix High School. +12 +16 28

	Full-time	Part-Time	Total
Female	28	15	43
Male	12	16	28
Total	40	31	71

A. P(Full-time | Male) = Reduced Fraction: 3/7

12/71 / 28/71

B. P(Male | Full-time) = Reduced Fraction: 3/10

12/71 / 40/71 = 12/40 = 3/10

C. P(Female | Part-time) = Reduced Fraction: 15/31

15/71 / 31/71

D. P(Full-time | Part-time) = Reduced Fraction: 0

MAT Georgia Standards Of Excellence

Sec 8.3 – Probability

(Review) Independent & Dependent Probability

Name: kinsey smith

Two events are said to be **Independent** if the occurrence of the first event does NOT affect the probability of the second event and events are independent if **P(A) · P(B) = P(A and B)**

INDEPENDENT PROBABILITY

1. Determine the following probabilities if each of the following are **independent**.

GIVEN: **P(A) = 0.8** **P(B) = 0.25** **P(C) = 0.6**

a. P(A and C) =

0.8 · 0.6 =

Decimal: 0.48

b. P(A and B and C) =

0.8 × 0.25 × 0.6

Decimal: 0.12

c. P(Rolling a 4 on a standard die and B) =

$\frac{1}{6} \times 0.25$

Decimal: 0.042

d. Find P(D) if D is an independent event and P(C and D) = 0.10

P(C) · P(D) = 0.10

$\frac{0.6 \times P(D) = 0.10}{0.6 \quad 0.6}$

Decimal: 0.167

e. P(Rolling a 2 on a standard die and picking a card with a "7" on it from a standard deck of cards) =

$\frac{1}{6} \times \frac{4}{52} = 0.0128$

Decimal: 0.0128

f. If your chances of losing the shell game if you randomly pick is 2 in 3. What are the chances that you would lose 5 games in a row?

2/3 2/3 2/3 2/3 2/3 $2/3^5$

Decimal: 0.132

g. If the Atlanta Hawks free throw percentage is 82%, what is the probability that a player for the Hawks will make 2 free shots in a row?

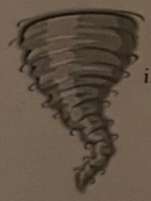
0.82 0.82 $0.82^2 =$

Percentage: 67.24 %

h. The chance of rain on a random day in May in Gwinnett is about 30%. Using this empirical probability, what would you estimate the probabily of having NO rain for an entire week (7 days)?

0.7⁷

Percentage: 8.24 %



i. (BONUS) Nancy estimates that the probability that a tornado will strike with in the city limits on any given year is 0.75%. What is the probability of at least one tornado touching down in the next 5 years? *(must use complements)*

$0.25^5 = 0.0097$

$0.0097 - 1$

Percentage: 99.9 %

2.

GIVEN: **P(M) = 0.8** **P(N) = 0.25** **P(R) = 0.6**

a. If the probability of **P(M and N) = 0.2,** are M and N independent?

0.8 × 0.25 = 02

Undependent

b. If the probability of **P(N and R) = 0.3,** are N and R independent?

0.25 × 0.6 = 0.15

dependent

DEPENDENT PROBABILITIES

3. Consider that 3 consecutive cards are drawn **without replacement** from a shuffled deck of cards

   A. What is the probability that the first two cards drawn are face cards?

   $\frac{12}{52} \cdot \frac{11}{51} = 0.050$

   Decimal: 0.050

   B. What is the probability that the all three cards are hearts?

   $\frac{13}{52} \quad \frac{12}{51} \quad \frac{11}{50}$

   Decimal: 0.013

   C. What is the probability that all three cards are a King?

   $\frac{4}{52} \cdot \frac{3}{51} \cdot \frac{2}{50}$

   Decimal: 0.00018

   D. What is the probability that all three cards are the same ?

   $0.0018 \times 13 = 0.0024$

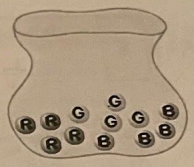
   Decimal: 0.0024

4. A bag contains 4 blue marbles, 4 red marbles, and 4 green marbles:

   A. What is the probability of drawing 2 green marbles **without replacement**?

   $\frac{4}{12} \quad \frac{3}{11} =$

   Decimal: 0.09

   B. What is the probability of drawing 3 marbles without replacement in a row of the same color **without replacement**?

   $\frac{4}{12} \quad \frac{3}{11} \quad \frac{2}{10} = 0.0182^{\wedge 3}$

   Decimal: 0.0546

5. James has 3 dimes, 4 pennies, and 2 quarters in his pocket. If each coin is equally likely to be pulled out of his pocket in order **without replacement**, what is the probability that he will pull out the 2 quarters in a row first?

   $\left(\frac{2}{9}\right) \times \left(\frac{1}{8}\right)$

   Reduced Fraction: $\frac{1}{36}$

6. In a cookie jar there are 10 chocolate chip cookies and 8 peanut butter cookies left. The cookies are randomly mixed together in the jar. What is the probability of pulling two of the same types of cookies out of the cookie jar in a row **without replacement**?

   $\left(\frac{10}{18}\right)\left(\frac{9}{17}\right) + \left(\frac{8}{18}\right)\left(\frac{7}{17}\right)$

   DECIMAL: 0.4771

7. In a classroom there are 7 male students and 11 female students that are taking a test. If each student is equally likely to turn in their test at any given time at the end of class, what is the probability that the first 3 students to turn in their test are female students?

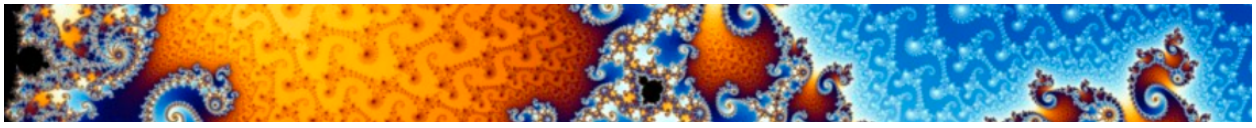
   $\left(\frac{11}{18}\right) \times \left(\frac{10}{17}\right) \times \left(\frac{9}{16}\right)$

   DECIMAL: 0.2022

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



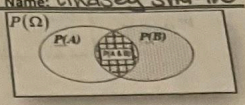
Week 14: 4/18 - 4/22

Links to/Photos of your work - include links or photos of all work for the week in this section

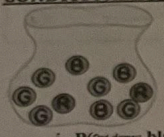
See 8.4– Applications of Probability
Conditional Probability

Name: Lindsey Smith

$P(A \mid B)$ asks that we find the probability of A given that we know B has or already occurred. Using a formula find the probability of A given B can be found using $P(A \mid B) = \frac{P(A \text{ and } B)}{P(B)}$



CONDITIONAL PROBABILITY



1. Determine the following **conditional** probabilities.

Consider a bag with marbles, 3 blue marbles, 2 red marbles, and 5 green marbles. Three marbles are drawn in sequence and are taken without replacement.

i. P(2nd draw: **blue** | 1st draw: **red**) = Reduced Fraction: 3/3

2/10 3/9 2 and 1st — 2/10 · 3/9 = 6/90

ii. P P(2nd draw: **blue** | 1st draw: **blue**) = Reduced Fraction: 2/9

3/10 · 2/9 = 3/16

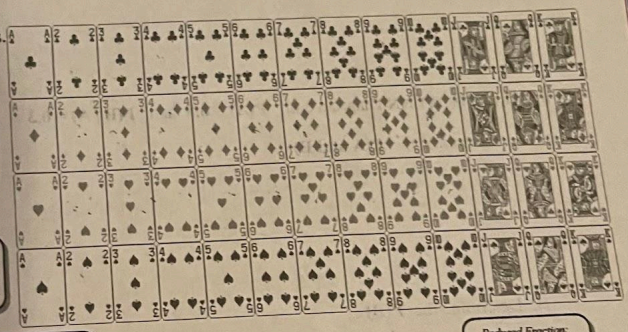
iii. P(3rd draw: **blue** | 1st draw: **red**, 2nd draw: **blue**) = Reduced Fraction: 1/4

6/90 = 2/10 = P 2/10 · 3/9 · 2/8 / 2/10 · 3/9

ii. P P(3rd draw: **blue** | 1st draw: **red**) = Reduced Fraction: 0

2. Determine the following **conditional** probabilities.

Consider drawing 1 card from a standard deck of shuffled cards:



i. P(Queen | Face Card) = Reduced Fraction: 1/3

4/52 / 12/52 = 4/12

ii. P(Ace | Lettered Card) = Reduced Fraction: 1

4/52 / 4/52

iii. P(Heart with a Number | Red Card) = Reduced Fraction: 9/26

9/52 / 26/52

iv. P(Card with a Letter| King) = Reduced Fraction: 1

4/52 / 4/52

v. P(number less than 6 | Face Card) = Reduced Fraction: 0

vi. P(Odd Number | Numbered Card) = Reduced Fraction: 4/9

16/52 / 36/52 = 16/36

3. Consider the following table with information about all of the students taking Statistics at Phoenix High School. +12 +16 28

	Full-time	Part-Time	Total
Female	28	15	43
Male	12	16	28
Total	40	31	71

A. P(Full-time | Male) = Reduced Fraction: 3/7

12/71 / 28/71

B. P(Male | Full-time) = Reduced Fraction: 3/10

12/71 / 40/71 = 12/40 = 3/10

C. P(Female | Part-time) = Reduced Fraction: 15/31

15/71 / 31/71

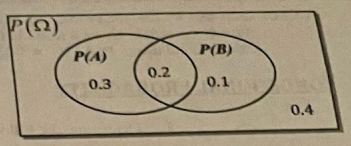
D. P(Full-time | Part-time) = Reduced Fraction: 0

$\frac{P(A \text{ and } B)}{P(B)}$

4. Given the following VENN Diagram answer the following.

A. $P(A \mid B) =$ Decimal: 0.67 $\quad \frac{0.2}{0.3} =$

B. $P(B \mid A) =$ Decimal: 0.4 $\quad \frac{0.2}{0.5}$



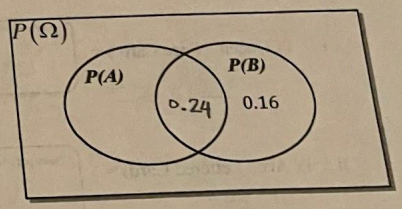
C. $P(A \mid B') =$ Decimal: 0.43 $\quad 1 - \frac{0.3}{0.7}$

D. $P(B \mid A') =$ Decimal: 0.2 $\quad 1 - 0.5 = 0.5 \quad \frac{0.1}{0.5}$

5. Given the $P(B) = 0.6$ and $P(A \mid B) = 0.2$, determine the $P(A \text{ and } B)$.

$0.2 \quad \frac{P(A \text{ and } B}{0.6)} \quad 0.2\,(0.6) = 0.12$

6. Given the VENN Diagram and $P(A) = 0.8$ and $P(B \mid A) = 0.3$



A. Determine the $P(A \text{ and } B)$

$P(B \mid A) = \frac{P(A \text{ and } B)}{0.8} \quad (0.3)(0.8) = 0.24$

B. Determine the $P(B)$

$0.24 + 0.16 = 0.40$

C. Determine the $P(B' \cap A)$

$= 0.8 - 0.24$

$= 0.56$

D. Determine the $P((A \cup B)')$

$1 - 0.56 - 0.24 - 0.16 = 0.04$

7. Also, two events can be determined to be independent if $P(A|B) = P(A)$ and $P(B|A) = P(B)$. Can you explain why?

$\frac{P(B)\,P(A|B)}{P(B)} = P(A)\,P(B) \qquad \frac{P(A)\,P(B|A)}{P(A)} = P(B)\,P(A)$

$P(A \text{ and } B) = P(A) \cdot P(B) \leftrightarrow P(B \text{ and } A) = P(B) \cdot P(A)$

MAT Georgia Standards Of Excellence

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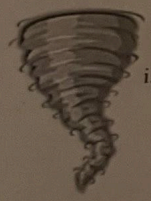

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   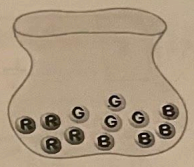

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   DECIMAL: 0.4771

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   $\left(\frac{11}{18}\right) \times \left(\frac{10}{17}\right) \times \left(\frac{9}{16}\right)$

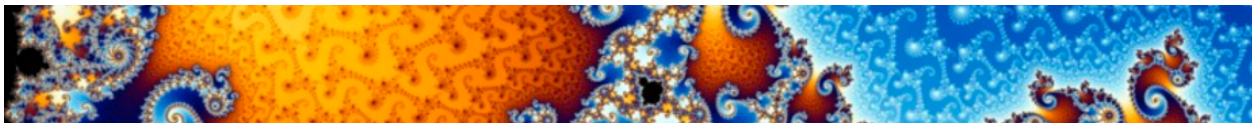
   DECIMAL: 0.2022

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?
We used technology this week, when we used Desmos to calculate our decimals and fractions.

2) How did you use math outside of math class this week?

I used math in Science this week when I converted different measurements such as liters to milliliters.



Week 15: 4/25 - 4/29

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

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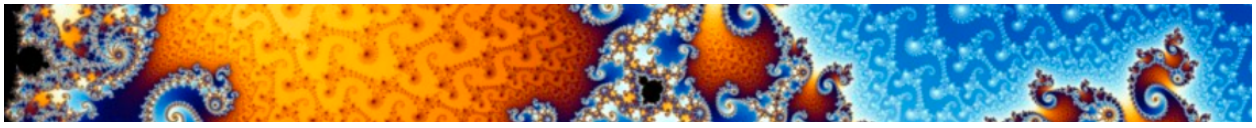
2) How did you use math outside of math class this week?



Week 16: 5/2 - 5/6

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STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

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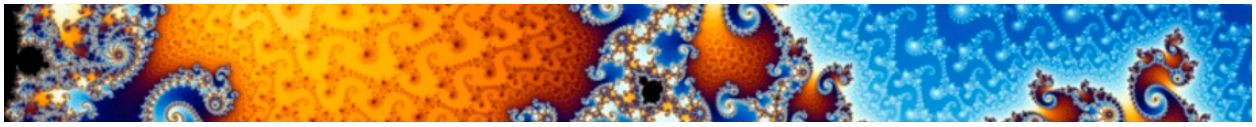

Week 17: 5/9 - 5/13

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

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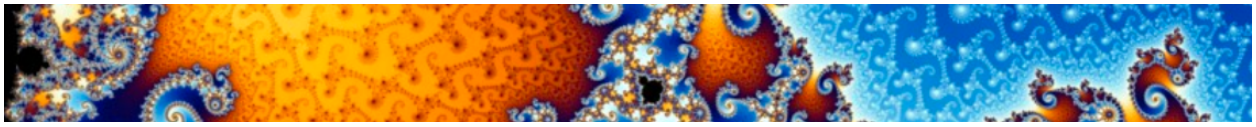
2) How did you use math outside of math class this week?



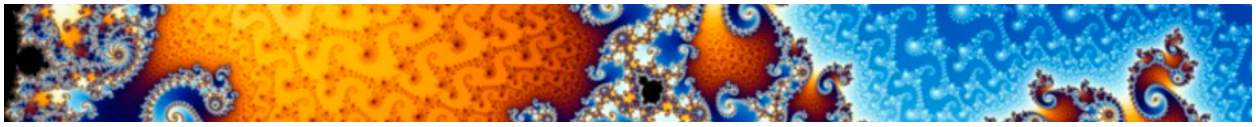
Week 18: 5/16 - 5/20

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?



Week 19: 5/23 - 5/26

Links to/Photos of your work - include links or photos of all work for the week in this section

STEAM Journal Entry - reflect on two components of STEAM this week

1)How did we incorporate STEAM in class this week?

2) How did you use math outside of math class this week?