

# Day 54

## 1. Opener

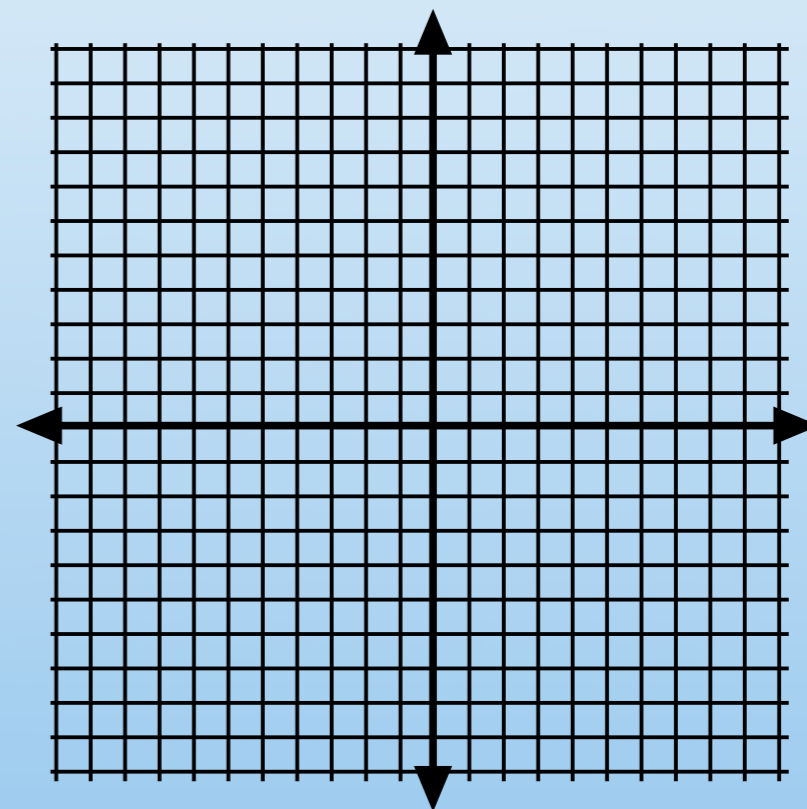
- a) A rectangle is cut twice — once horizontally and once vertically. The four smaller rectangles have area 45, 25, 15, and  $x$ . Find  $x$ .

- b) Sketch a coordinate plane and connect the points:

$(-2, 3)$ ,  $(5, -2)$ ,  $(3, 5)$ ,  $(0, -4)$ .

What kind of quadrilateral is this?

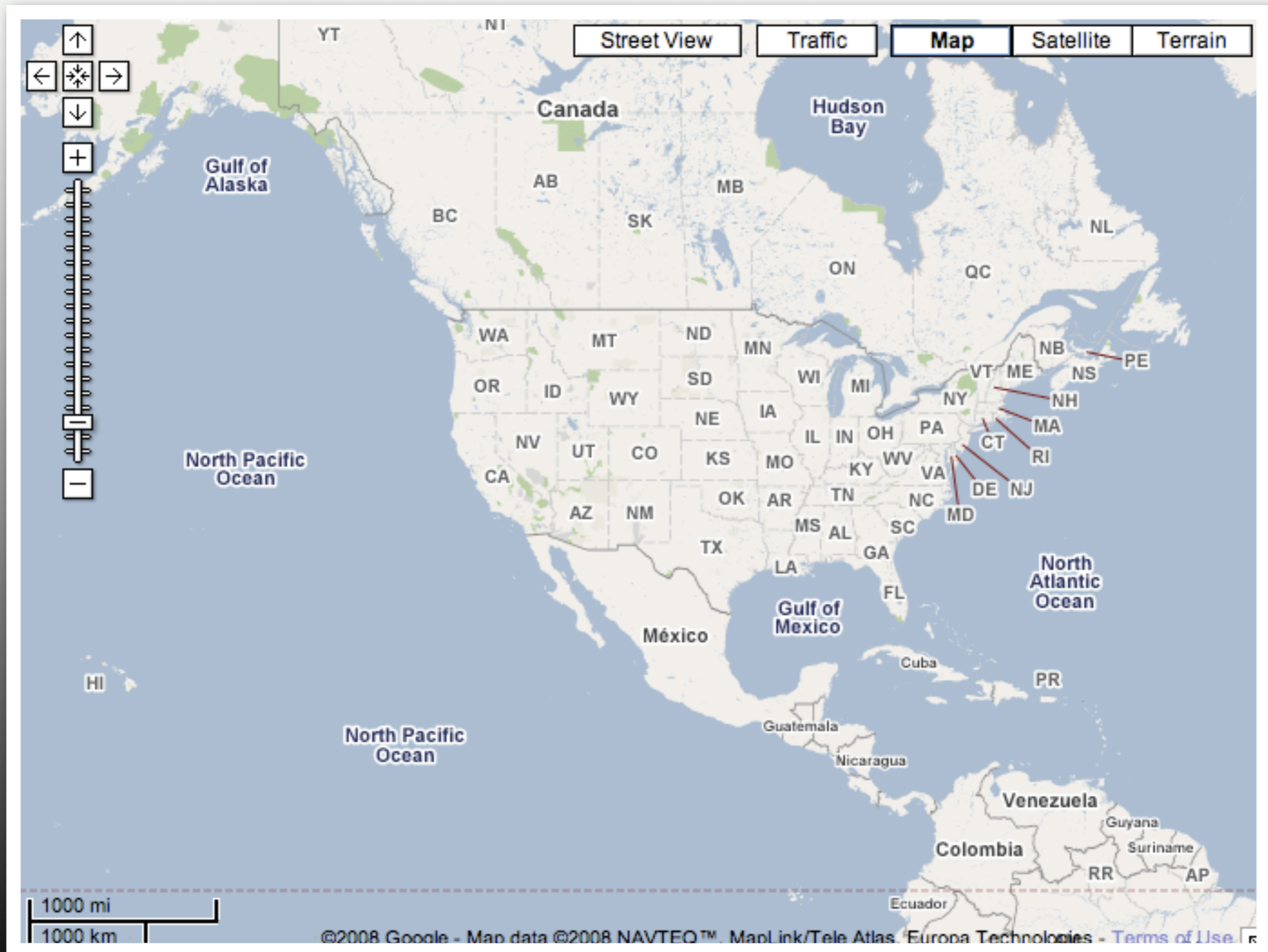
How would you prove it?



- c) A new student has joined our class. What advice do you have for him or her about this class?
- d) Which is closer to our school? HI or NY?



Play dumb, like HI is OBVIOUSLY closer to California.

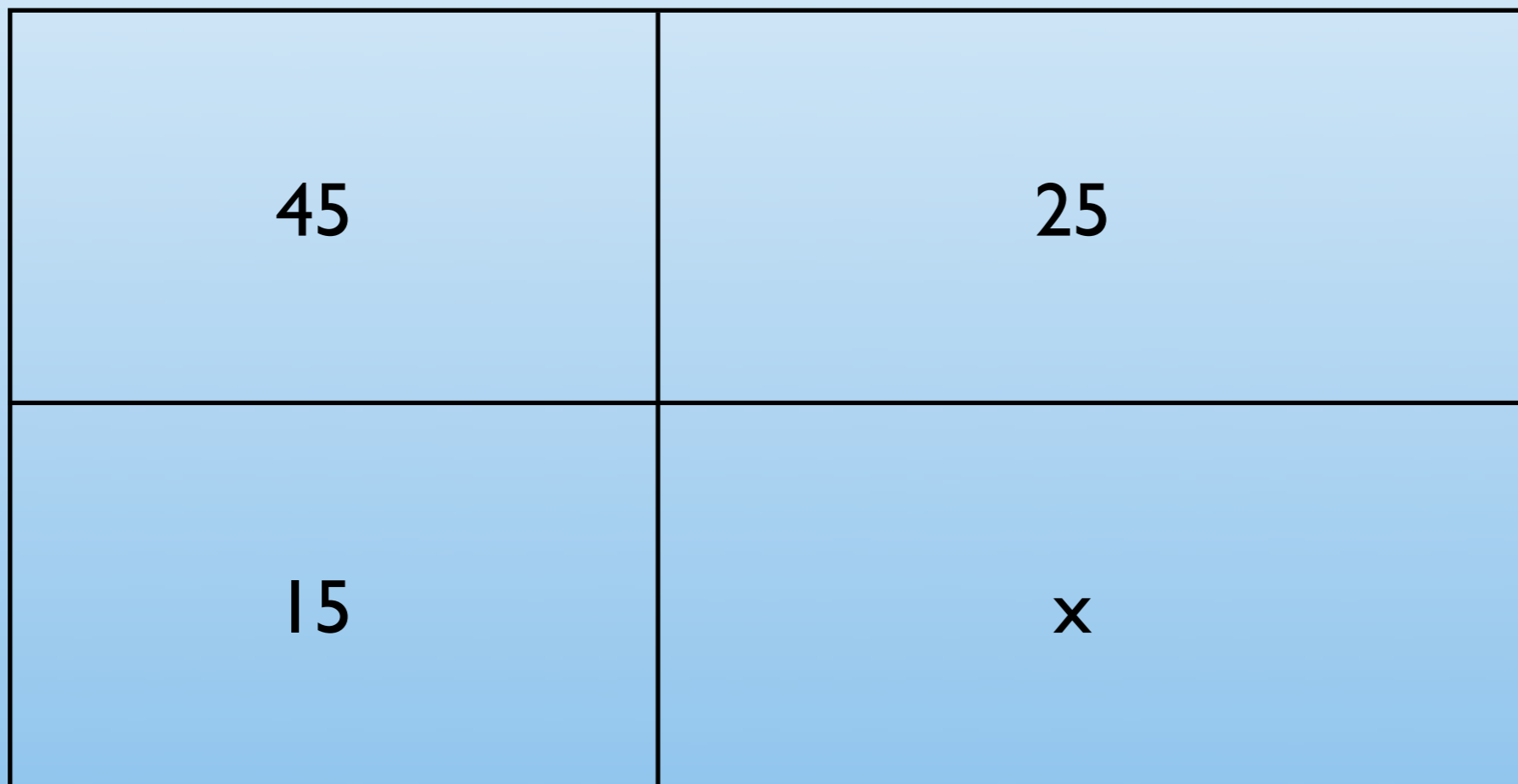




distance between cities

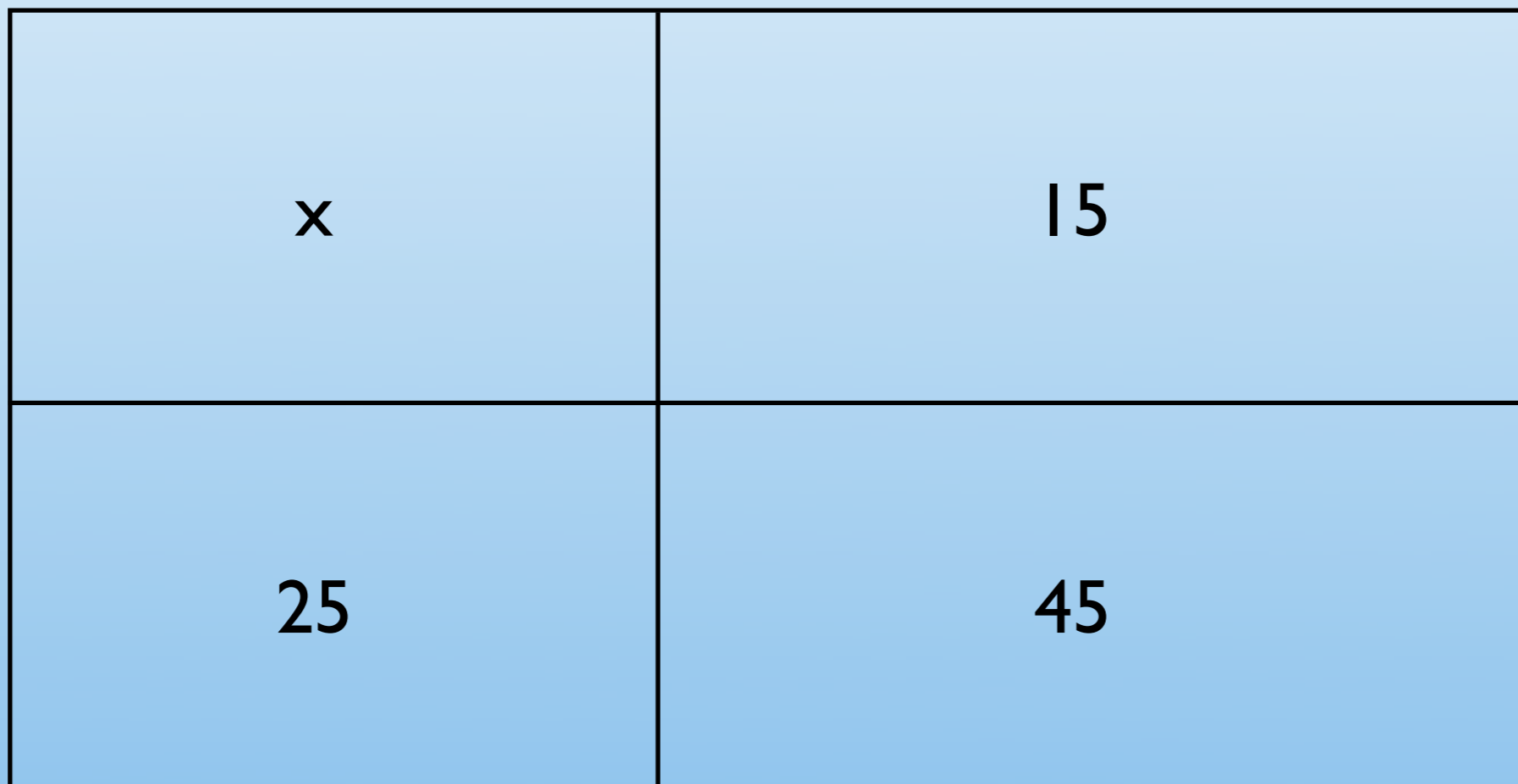
## Day 58

A rectangle is cut twice — once horizontally and once vertically. The four smaller rectangles have area 45, 25, 15, and  $x$ . Find  $x$ .



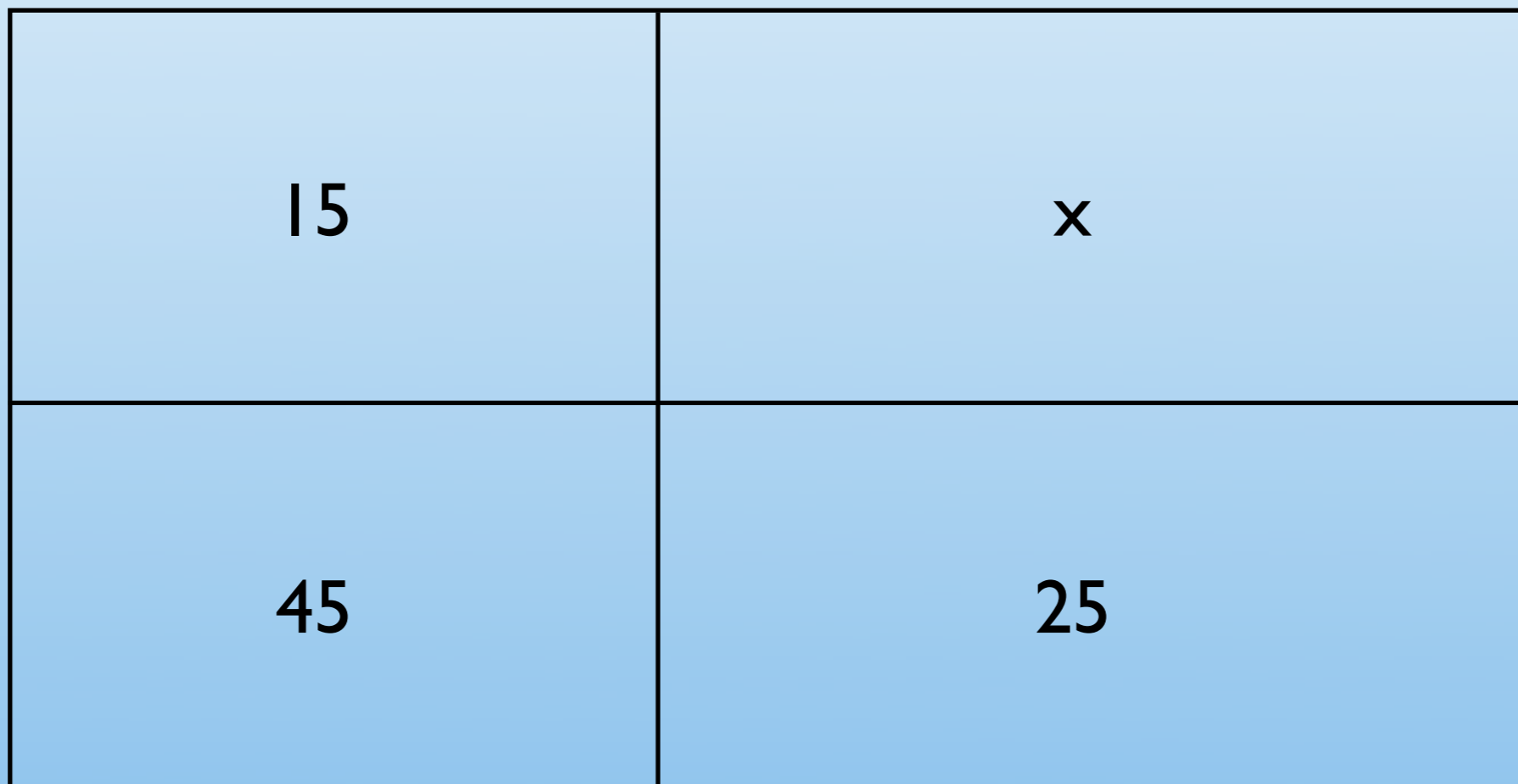
## Day 58

A rectangle is cut twice — once horizontally and once vertically. The four smaller rectangles have area 45, 25, 15, and  $x$ . Find  $x$ .



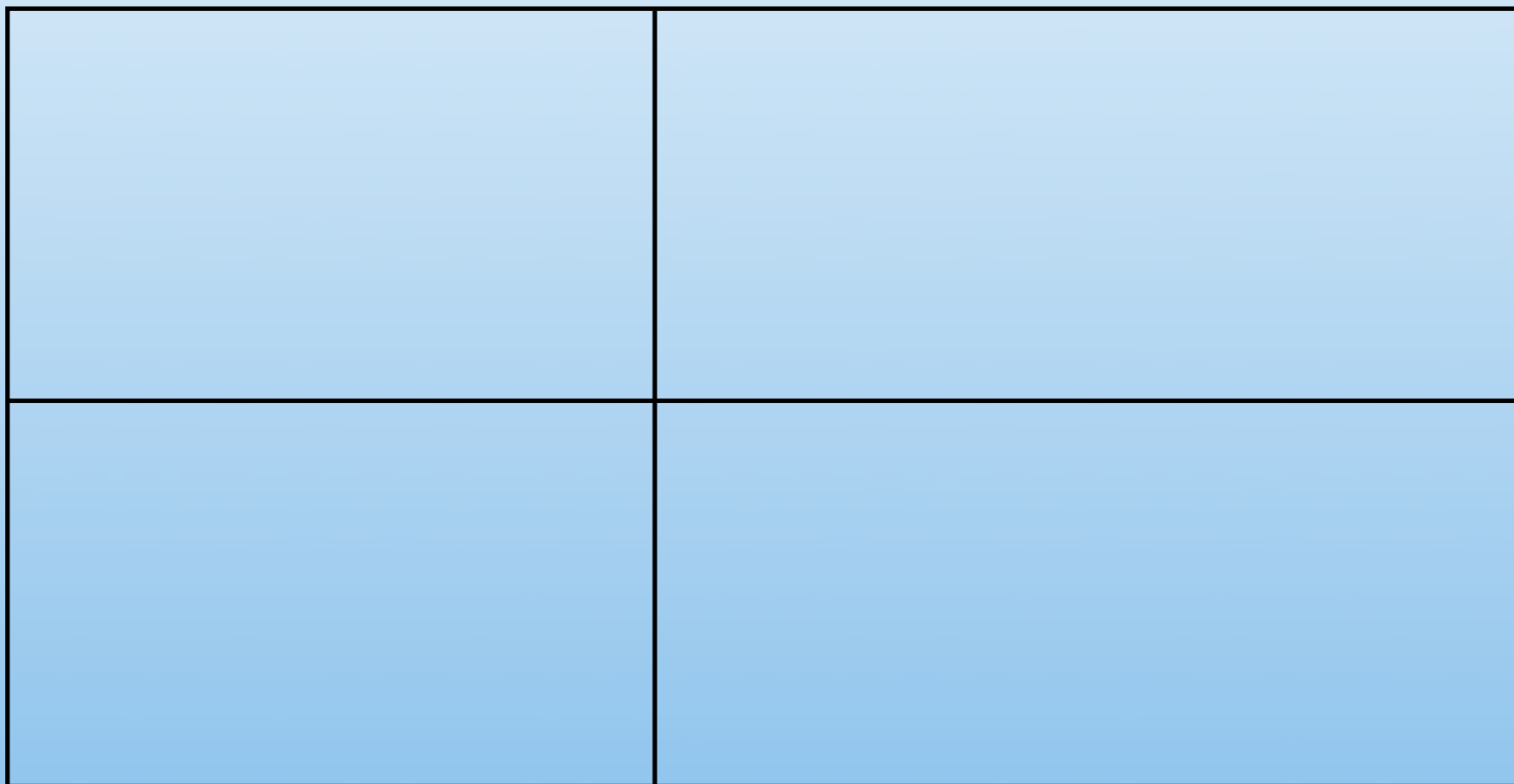
## Day 58

A rectangle is cut twice — once horizontally and once vertically. The four smaller rectangles have area 45, 25, 15, and  $x$ . Find  $x$ .



## Day 58

A rectangle is cut twice — once horizontally and once vertically.  
The four smaller rectangles have area 45, 25, 15, and  $x$ . Find  $x$ .

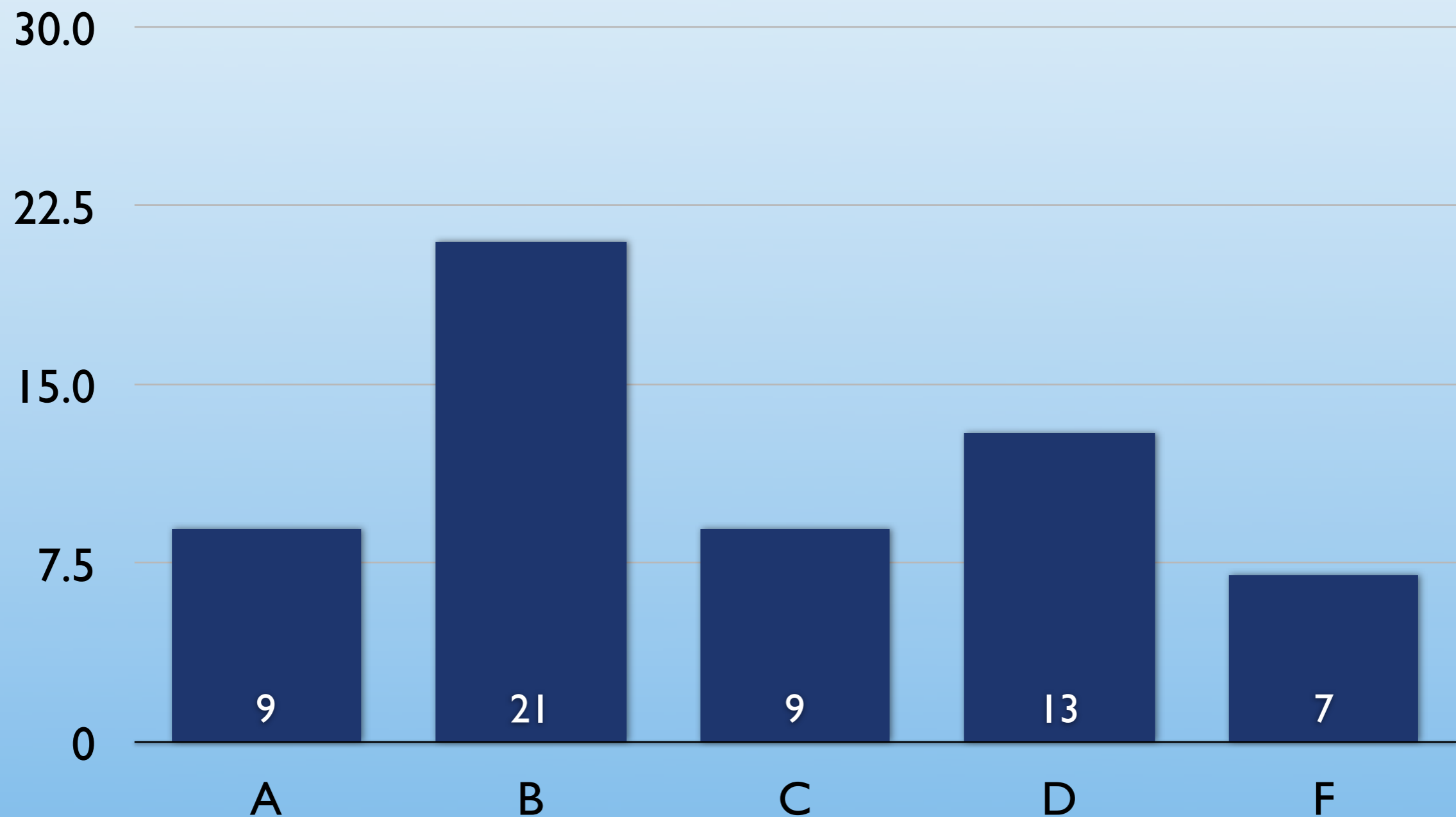


### **3. How We Work - A Review**

#### The Two Largest Rules

1. Respect the speaker.
2. Always participate.

## 4. Final Grade Results



The increase of detention from 30 sec. to 1 min. is respectful. I respect their capacity to learn and retain and, after a semester, they know the rules. They now decide whether or not to work within them.

## 5. The Feltron Project

The increase of detention from 30 sec. to 1 min. is respectful. I respect their capacity to learn and retain and, after a semester, they know the rules. They now decide whether or not to work within them.

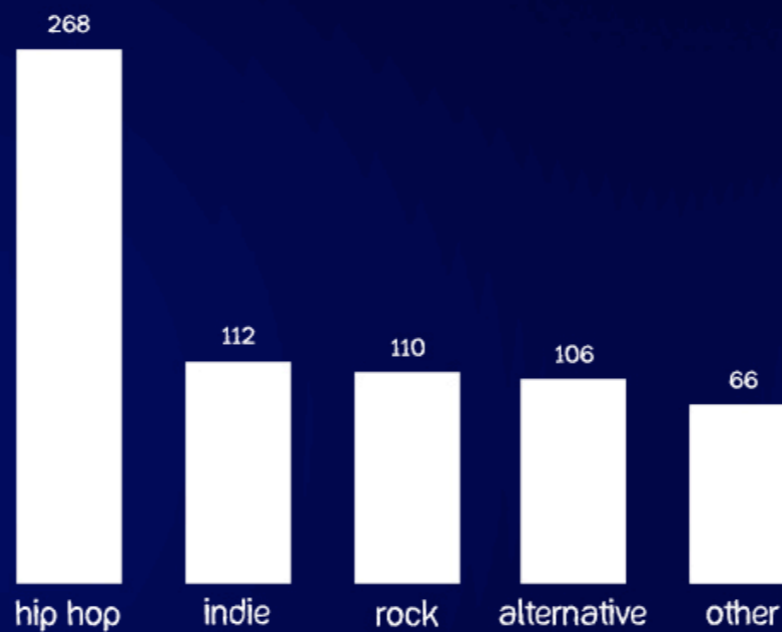
**07**

**DAN MEYER**  
//  
**ANNUAL REPORT**

# INPUT // MUSIC

## most tracks added

// tracks



## most played

// plays

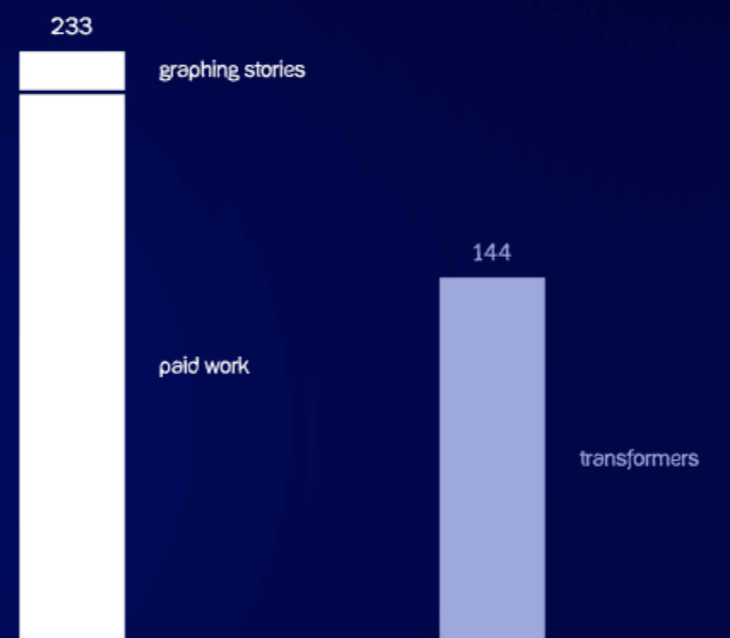
1. little motel, modest mouse // 71
2. run to your grave, maeshi // 64
3. tranquilize, the killers feat. lou reed // 54
4. bang the doldrums, fall out boy // 48
5. the (after) life of the party, fall out boy // 41
6. parting of the sensory, modest mouse // 41
7. the west coast, coconut records // 40

## last played

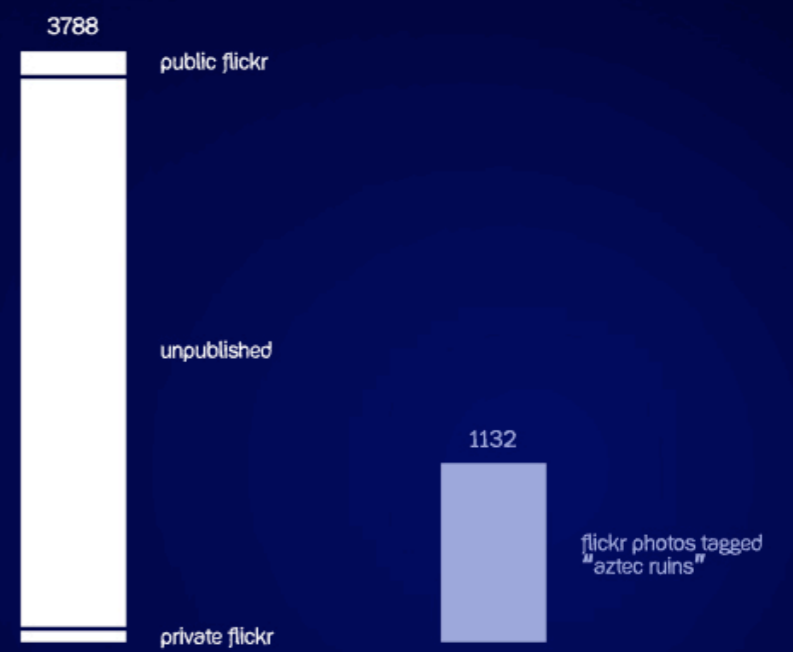
umbrella, rihanna

# OUTPUT // VISUAL

## video (edited minutes)



## photos (taken)



# OUTPUT

---

# BLOG

days blogged



january



february



march



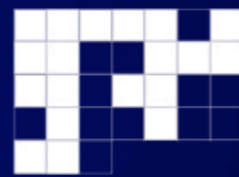
april



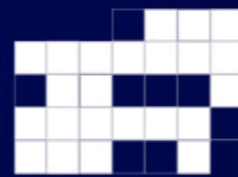
may



june



july



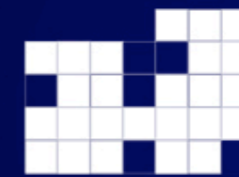
august



september



october



november



december

# OUTPUT // BLOG

354  
posts

7.3  
comments  
per post

4  
most  
consecutive days  
without a post

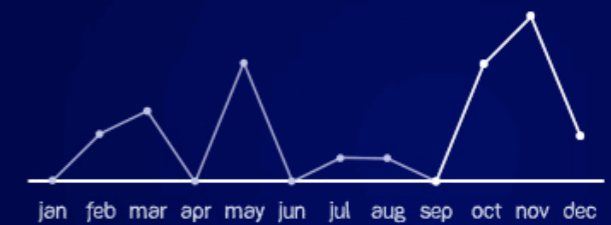
1.5  
subscribers added  
per day

105,153  
words written in  
dy/dan

198,227  
words written in  
harry potter and  
the deathly hallows

## posts by tag

—assessment—  
—design—



## 5. The Feltron Project

1. Track Four (4) Variables.

Where I've Been

Text Messages I've Sent / Received

Movies I've Watched

Whom I've Watched Them With

Coffee Drinks I've Purchased

Where I've Purchased Them

2. Illustrate Them Mathematically

1/8	LOC	mh, sv
	DRINK	16oz soy mocha xhot
1/9	LOC	mh, sv
1/10	LOC	mh, sv
	DRINK	16oz 2 soy mocha xhot
	DRINK	life aquatics, solo duel
1/11	DRINK	16oz. chai soy xhot
	LOC	mh sv
1/12	DRINK	16oz. soy mocha xhot CC
	LOC	sv, mt, sc
	DRINK	hazelnut draft
1/13	DRINK	apricot de 16oz. CC
	LOC	sv, sc, mt
1/14	DRINK	coffee, fat cat 16oz
	LOC	MTA
1/15	DRINK	capuccino, cougar cafe
	"	12oz made with milk, xhot - best
1/16	DRINK	coffee, 12oz.
<hr/>		
	LOC	MH, <del>mt</del> pacific grove
	LOC	mt, Fremont
1/17	DRINK	iced soy mocha 16oz coffee
	LOC	mt sv
1/18	DRINK	16oz chai xhot cougar cafe
		16oz. soy mocha xhot octagon
		will be back del mar before
1/19	DRINK	16oz. soy mocha xhot
	DRINK	cloverfield cream 9 sd.

## 5. The Feltron Project

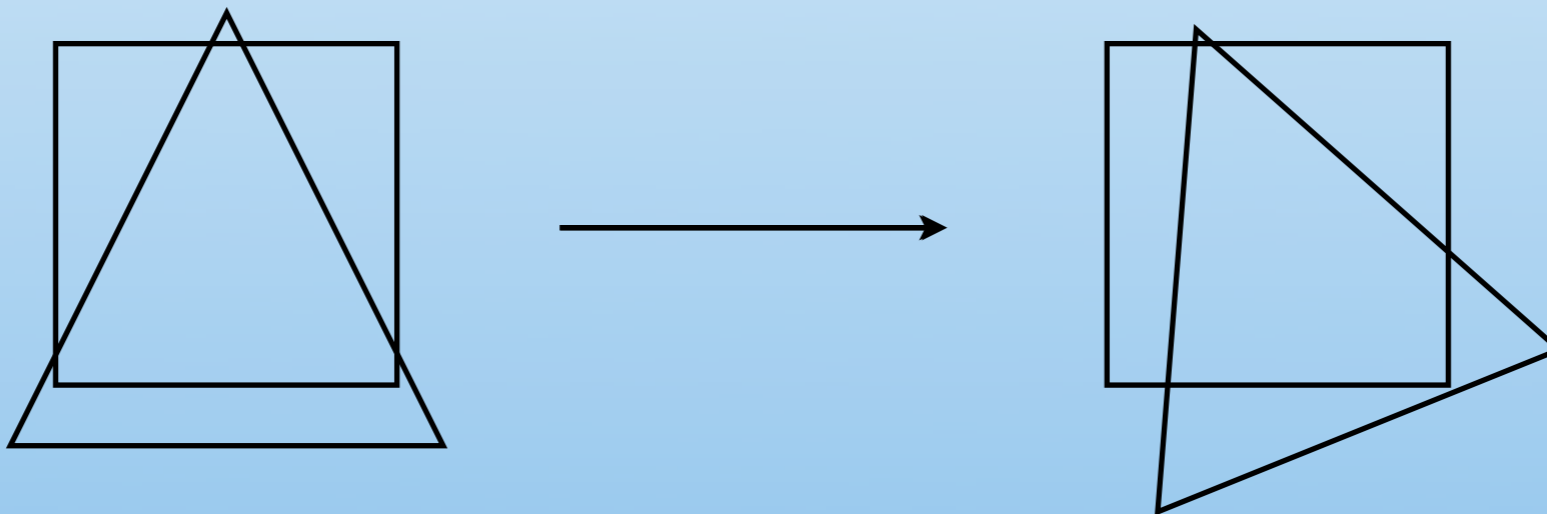
1. Interesting-ness of Tracked Variables
2. Mathematical Correctness
3. Graphic Design

**6. Break**

**7. Show and Tell**

## 8. Notes

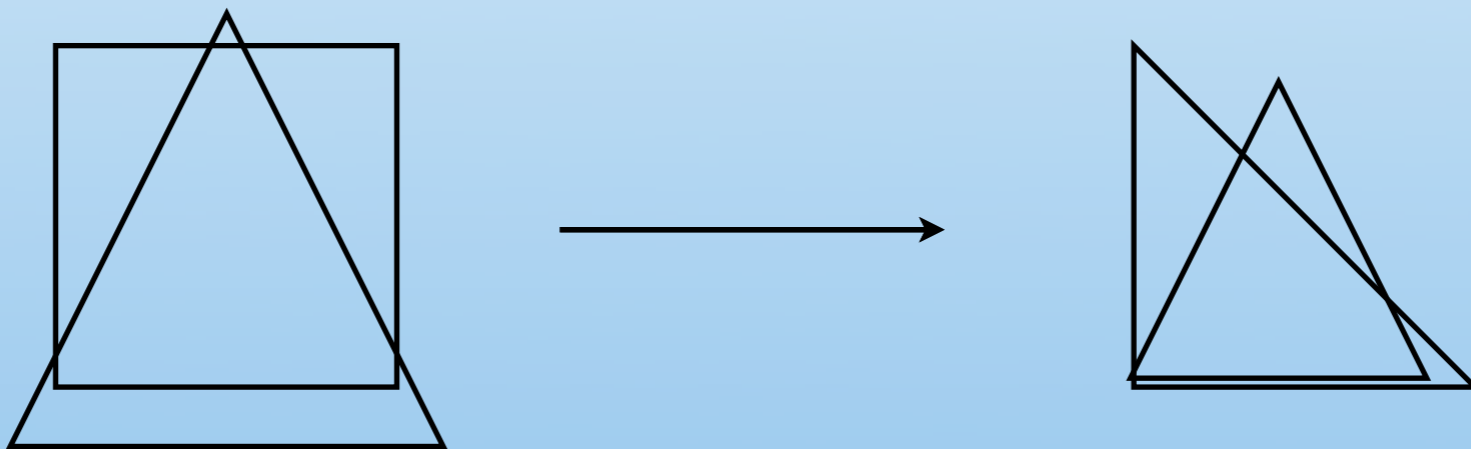
### Rigid Transformations



“Can anyone now define: rigid transformation?”

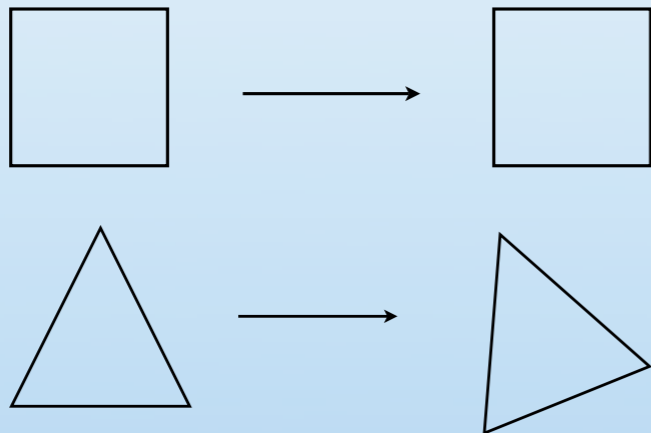
## 8. Notes

### Non-Rigid Transformations



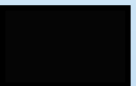
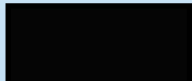
## 8. Notes

### Rigid Transformations

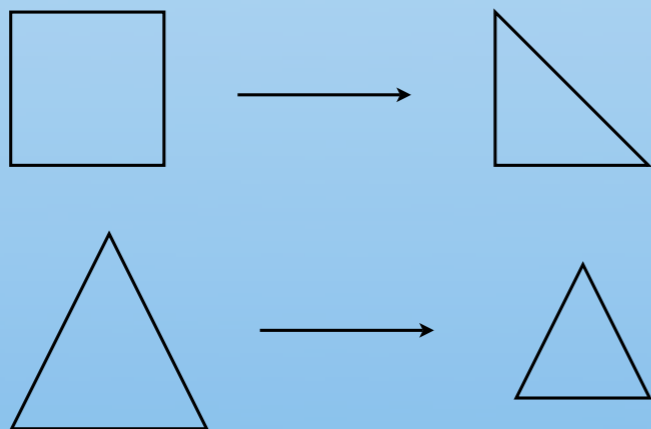


#### Definition

#### Rigid Transformation

A transformation that preserves the  and  of a figure.

### Non-Rigid Transformations



## 8. Notes



What kind of transformation is this?

## 8. Notes

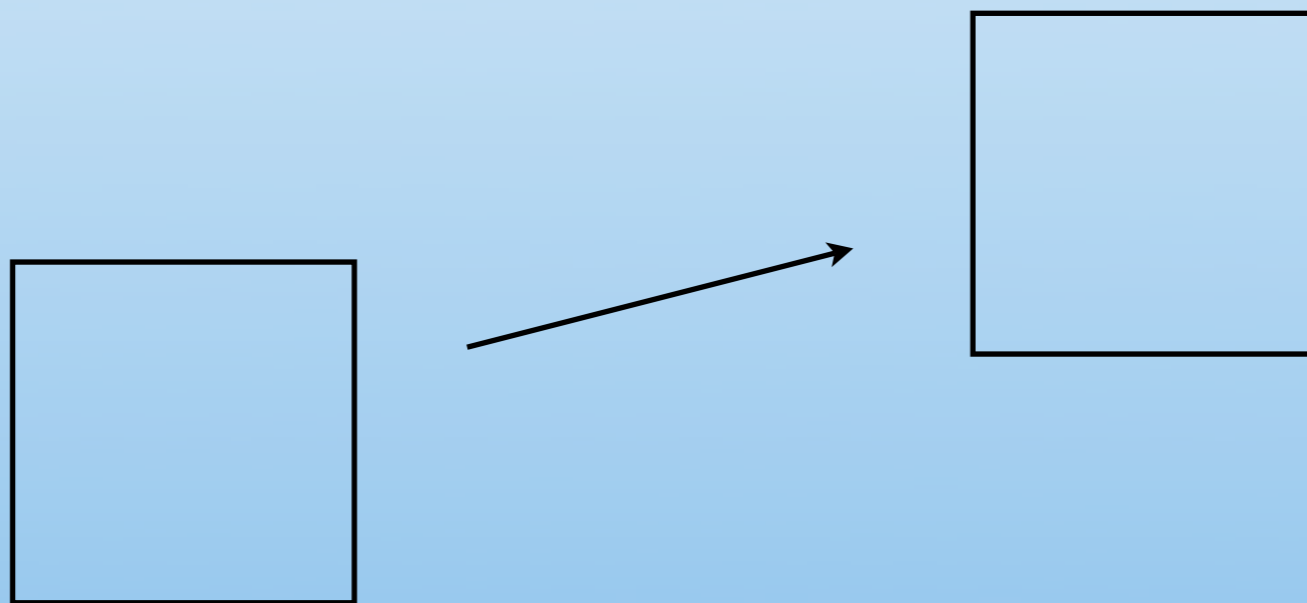


What kind of transformation is this?

## 8. Notes

Three kinds of rigid transformation.

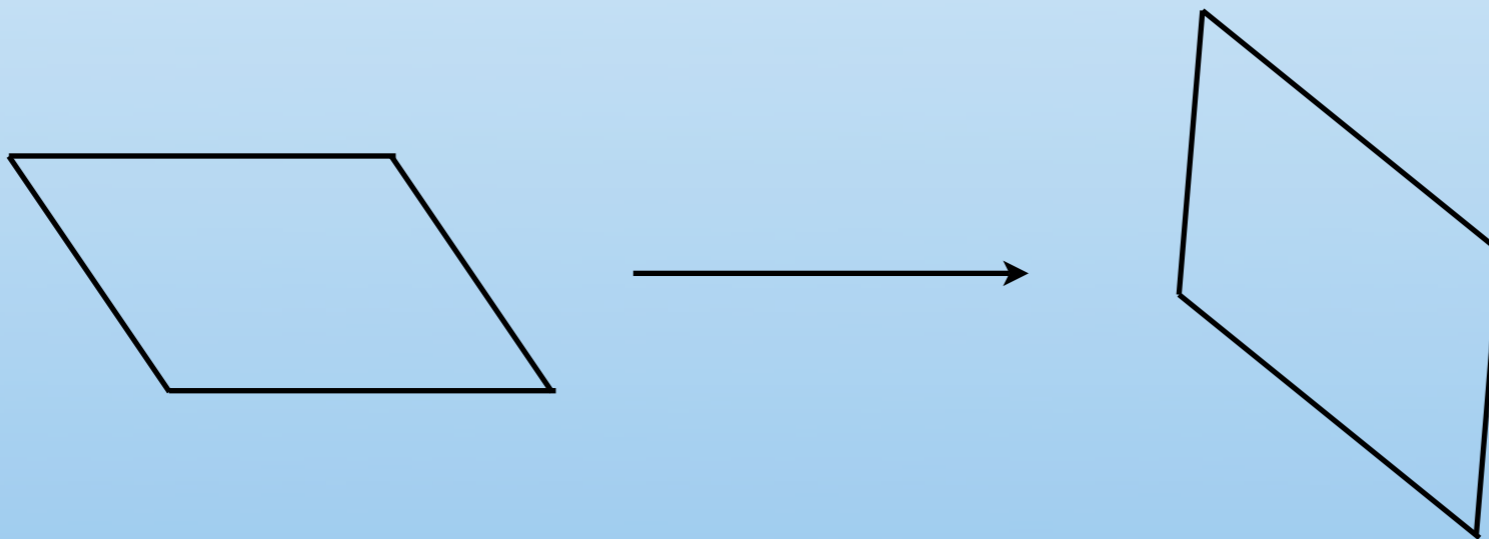
Translation:



## 8. Notes

Three kinds of rigid transformation.

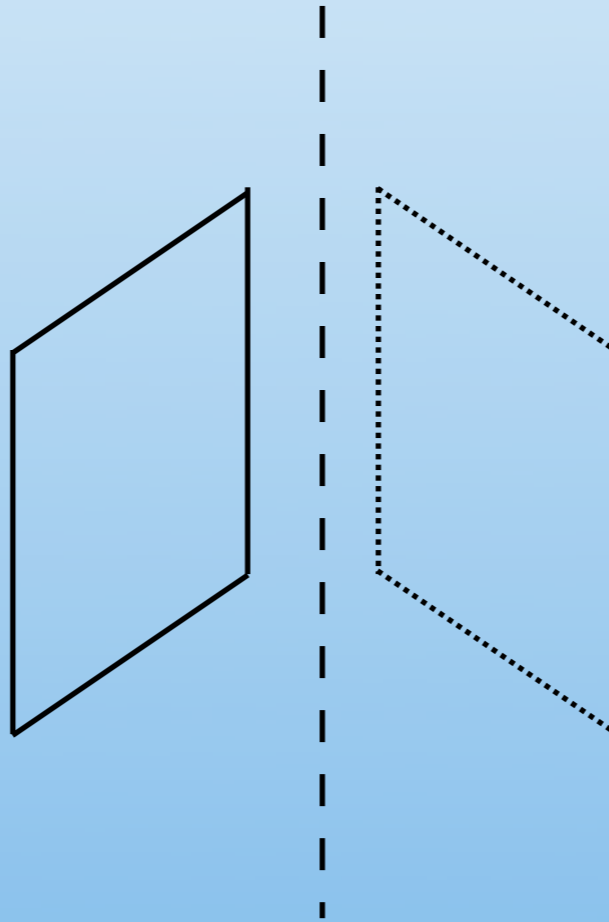
Rotational Symmetry:



## 8. Notes

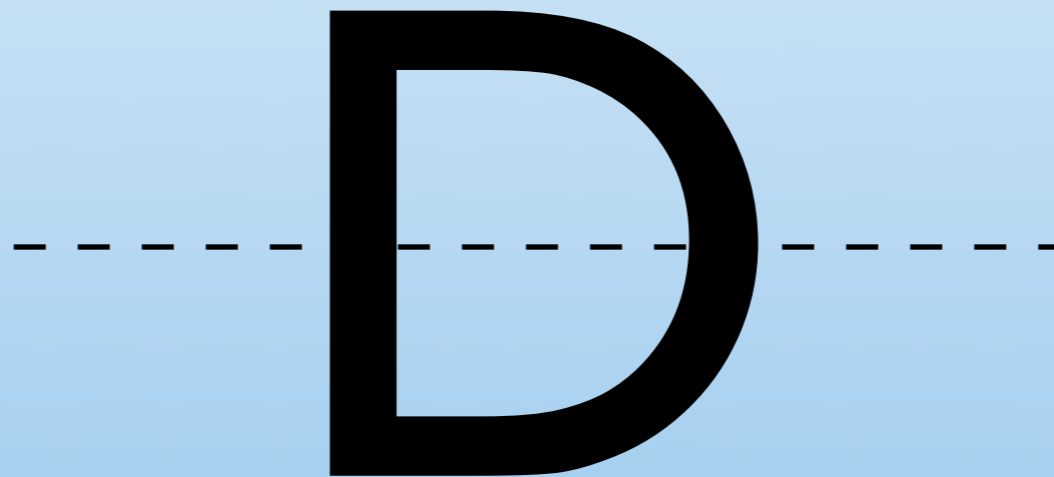
Three kinds of rigid transformation.

Reflectional Symmetry:



## 8. Notes

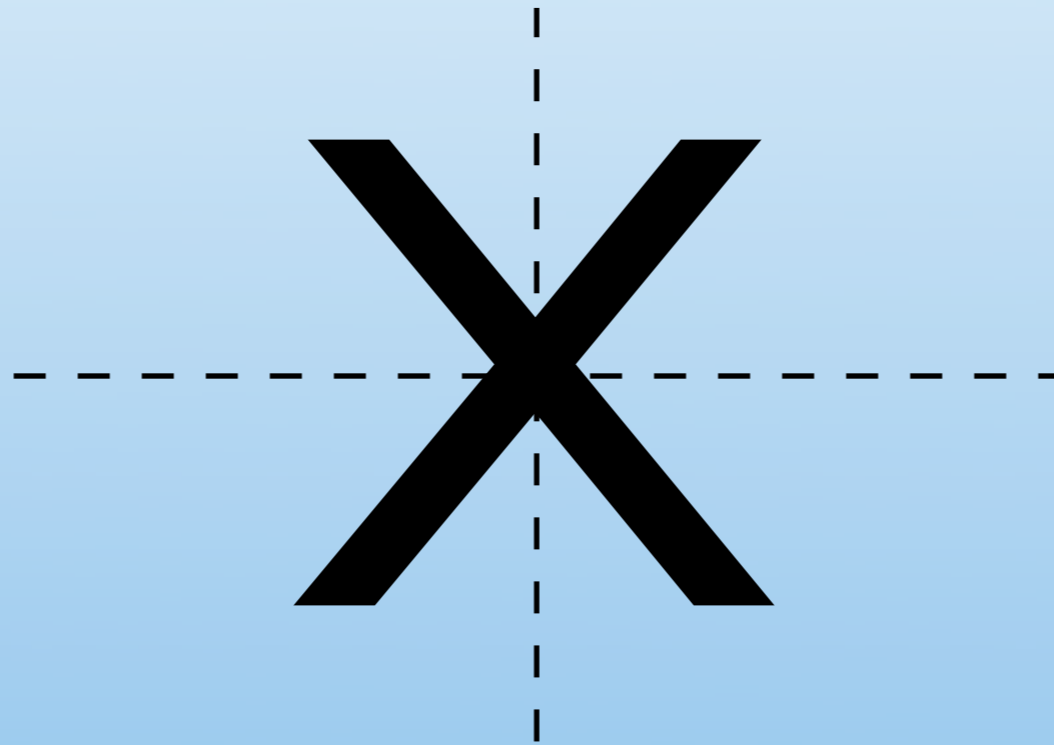
What kind of symmetry does the letter D have?



Rotational? Reflectional? Or both?

## 8. Notes

What kind of symmetry does the letter X have?



Rotational? Reflectional? Or both?

## 9. Classwork

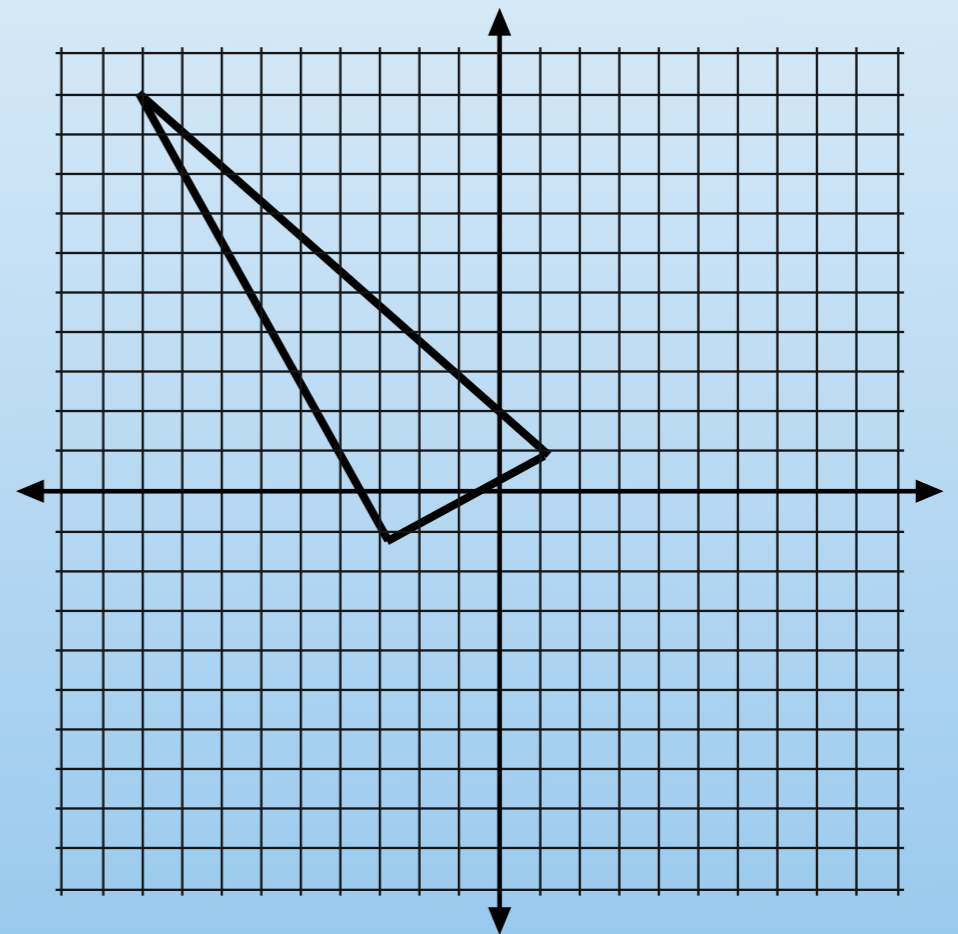
- a) Write the following letters.
- b) Describe their symmetry -- rotational, reflectional, or neither
- c) If they are reflectional, how many lines do they contain?

- |     |   |                                       |
|-----|---|---------------------------------------|
| 1.  | A | reflectional, 1                       |
| 2.  | B | reflectional, 1                       |
| 3.  | F | none                                  |
| 4.  | H | rotational and reflectional, 2        |
| 5.  | K | reflectional, 1                       |
| 6.  | N | rotational                            |
| 7.  | O | rotational and reflectional, infinite |
| 8.  | Q | none                                  |
| 9.  | T | reflectional, 1                       |
| 10. | Z | rotational                            |

# Day 55

## 1. Opener

- List the symmetries of the letters: G, M, and I
- List the coordinates of each of the triangle's vertices.
- Triangle ABC is isosceles with a vertex angle A of  $50^\circ$ . If D is on AC, E is on BC, and DE is parallel to AB, what is the measure of angle ADE?
- The Zimbabwean government recently released a \$10,000,000 note. How much is it worth in US dollars?





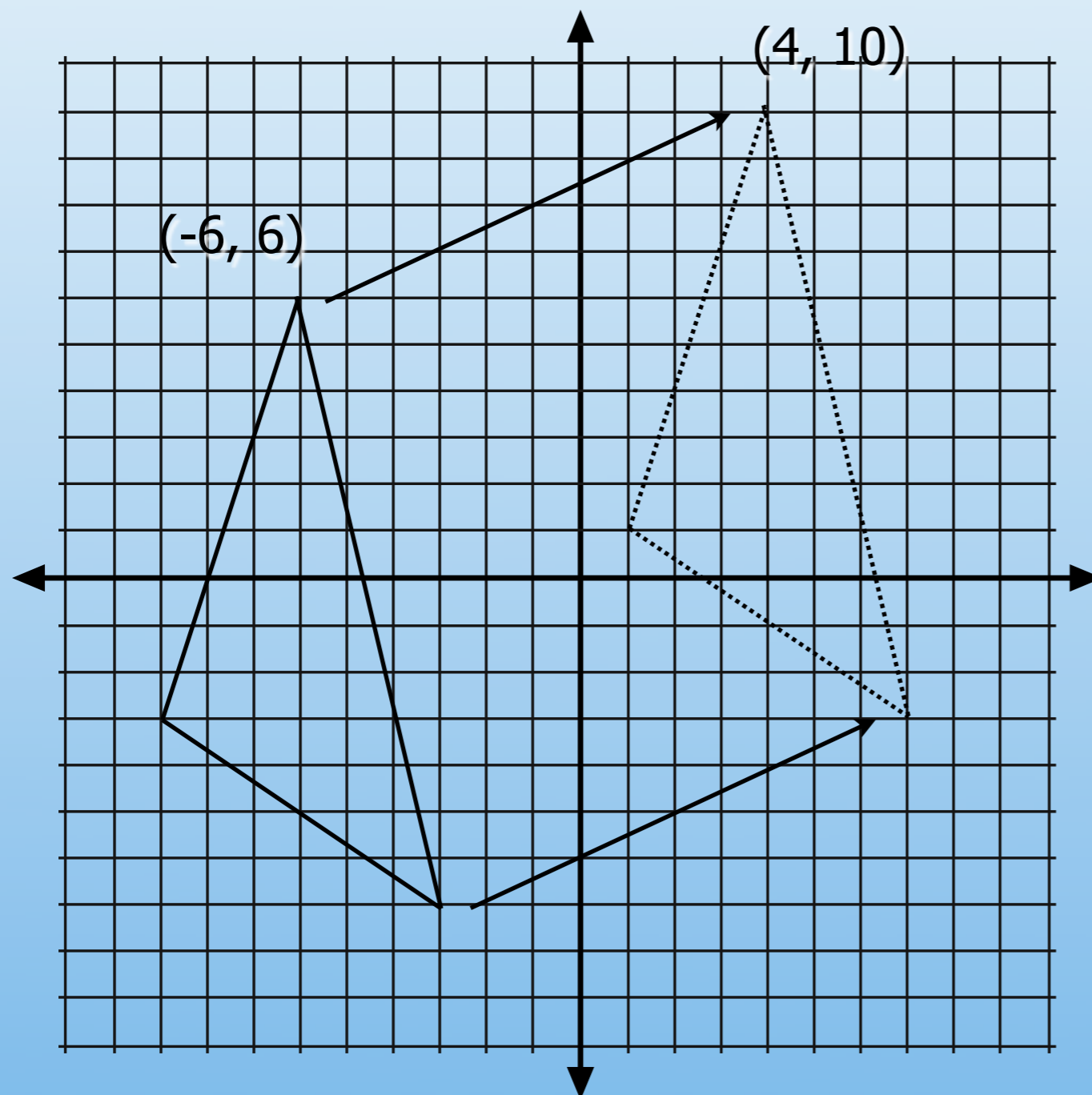
## 2. The Feltron Project - Checkpoint 1

What are your four variables?

Ask them to describe it in words -- it's moved up and right -- and then convert that to coordinates.

### 3. Notes - Describing Translations

How would you describe the following translation?



Original

$(x, y)$

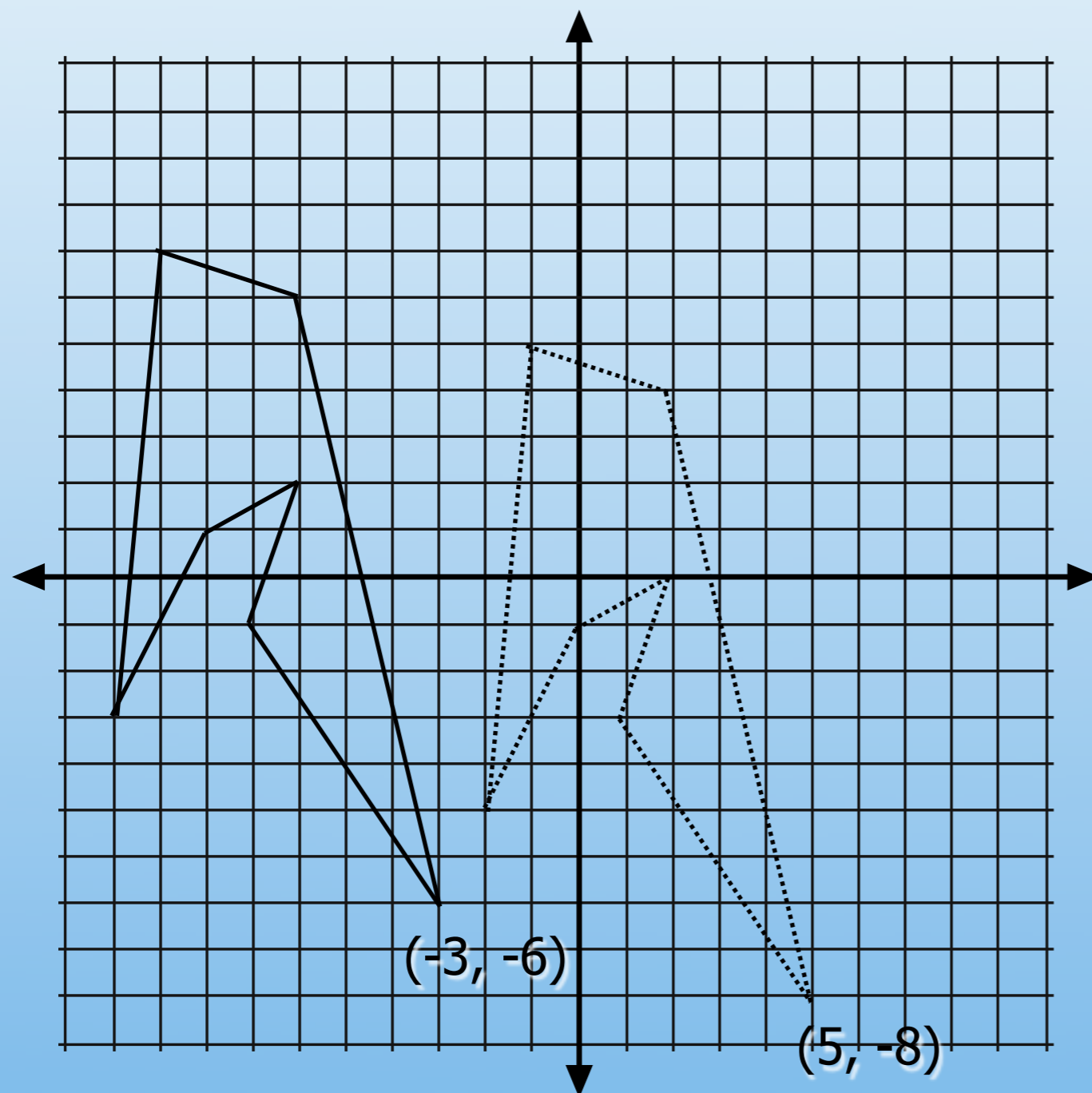
New

$(x + 10, y + 4)$

Ask them to describe it in words -- it's moved up and right -- and then convert that to coordinates.

### 3. Notes - Describing Translations

How would you describe the following translation?



Original

$(x, y)$

New

$(x + 8, y - 2)$

No matter how ugly the figure, the translation is as simple.

### 3. Notes - Describing Translations

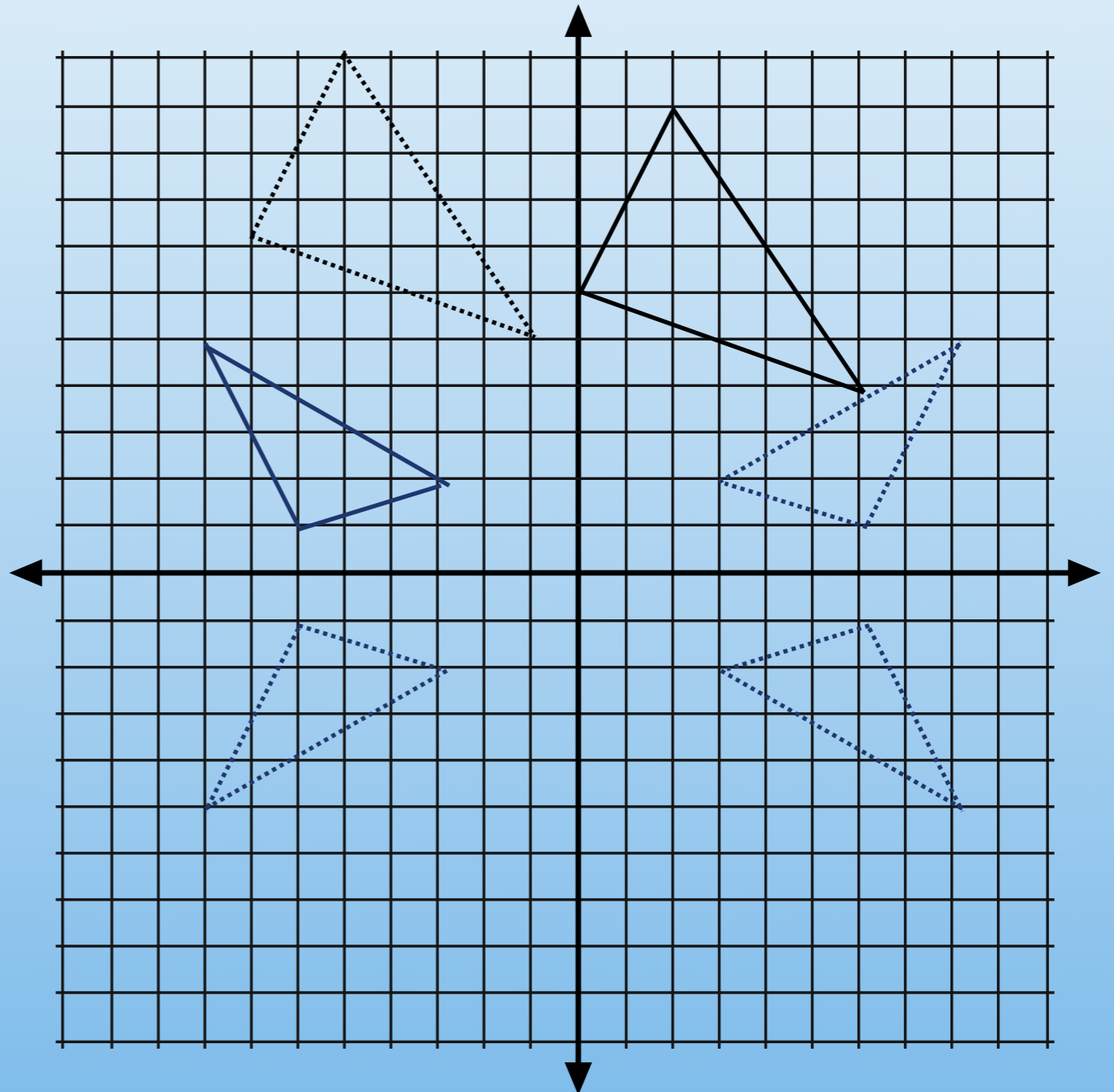
Draw the figures and apply the transformations.

$$(x, y) \longrightarrow (x - 7, y + 1)$$

$$(x, y) \longrightarrow (x, -y)$$

$$(x, y) \longrightarrow (-x, y)$$

$$(x, y) \longrightarrow (-x, -y)$$



Black: just take every point one at a time and move them 7 left and 1 up.

Red: Take every y and reverse the sign. What will it look like?

## 4. Classwork

pg. 370 // #1 - 5, 7, 8

pg. 362 // #1 - 4, 6, 11

**5. Break**

**6. Show and Tell**

## 7. Tessellations

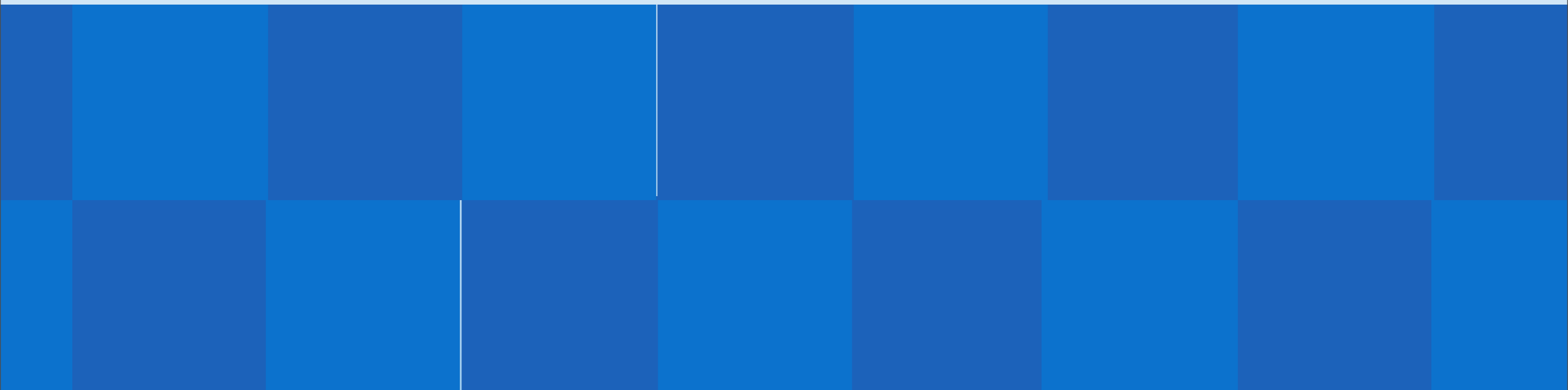
Does a regular triangle tessellate the plane?



Ask someone to draw it at the board.

## 7. Tessellations

Does a regular quadrilateral tessellate the plane?



Ask someone to draw it at the board.

A complex tessellation of the plane using regular pentagons. The pentagons are arranged in a non-uniform pattern, with some being dark blue, some light blue, and some very light blue. The tessellation is dense and covers the entire visible area.

## 7. Tessellations

Does a regular pentagon tessellate the plane?

Ask someone to draw it at the board.

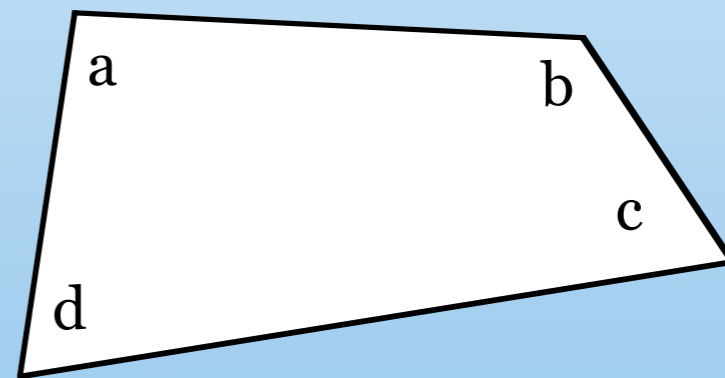
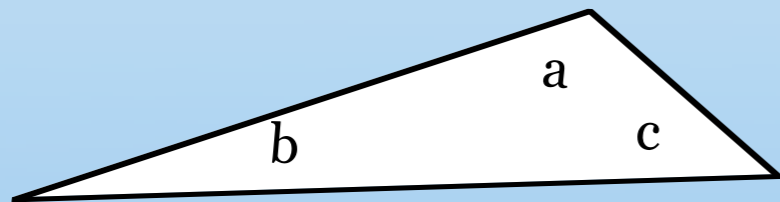
## 7. Tessellations

Does a regular hexagon tessellate the plane?

Ask someone to draw it at the board. Discuss why triangles, squares, and hexagons work but pentagons don't.

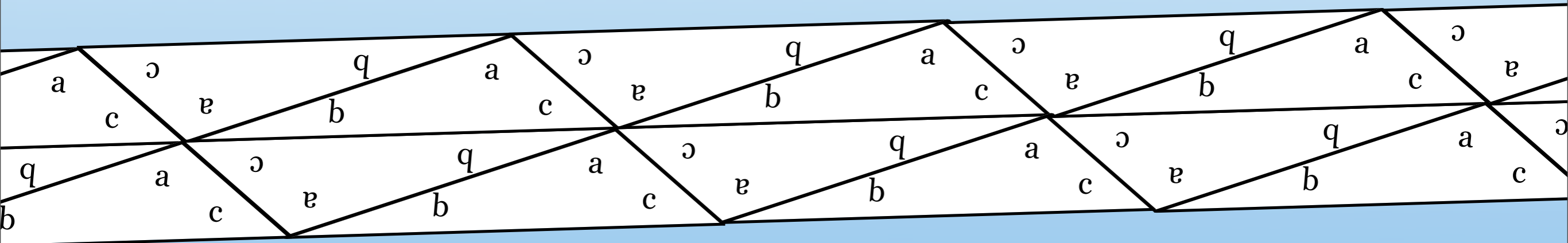
## 8. Classwork - Tessellation Activity

- a) Can any triangle tessellate the plane?
- b) Can any quadrilateral tessellate the plane?



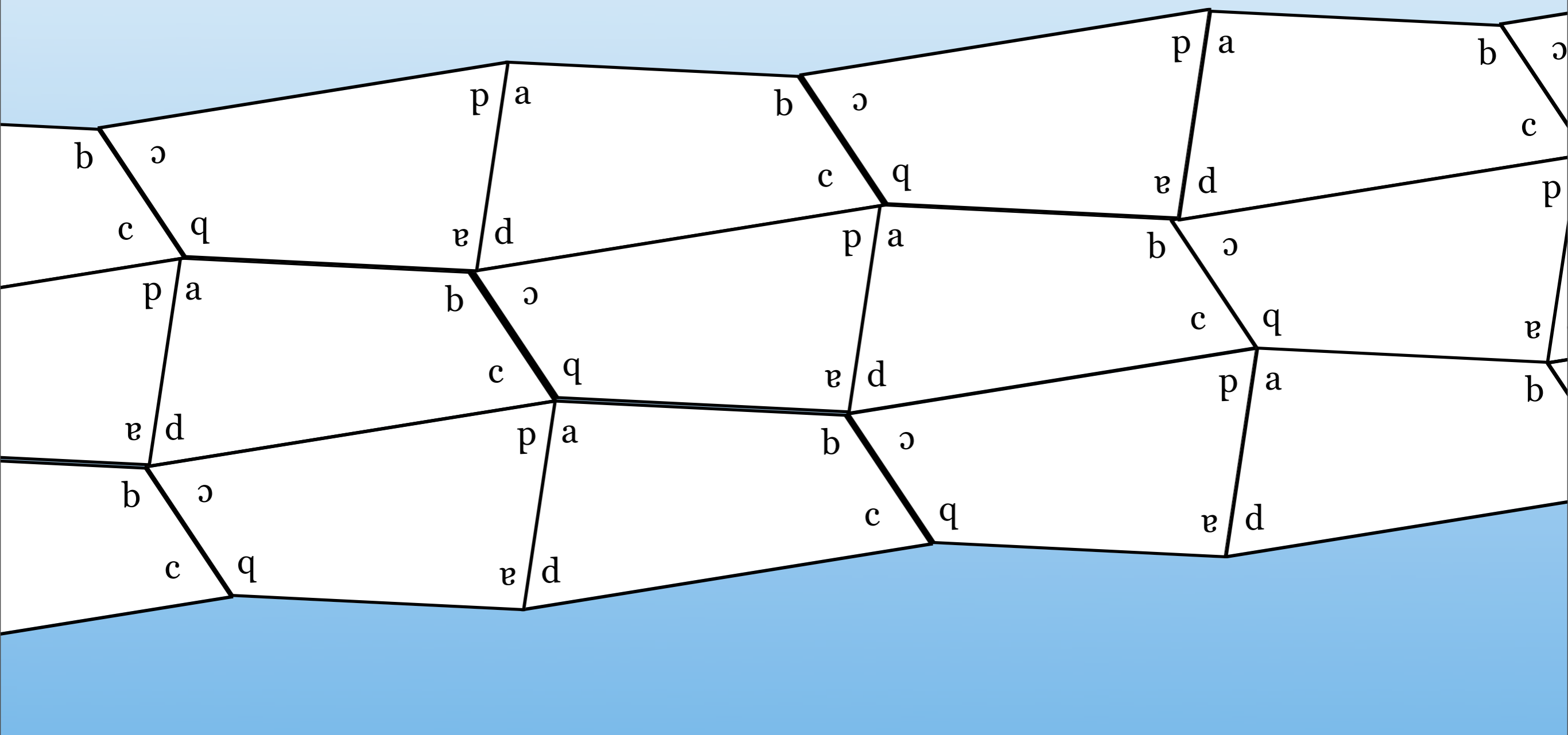
## 8. Classwork - Tessellation Activity

- a) Can any triangle tessellate the plane?
- b) Can any quadrilateral tessellate the plane?



## 8. Classwork - Tessellation Activity

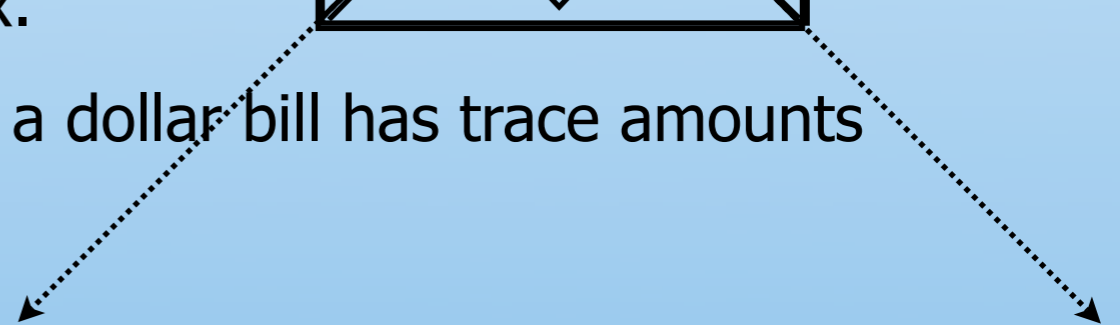
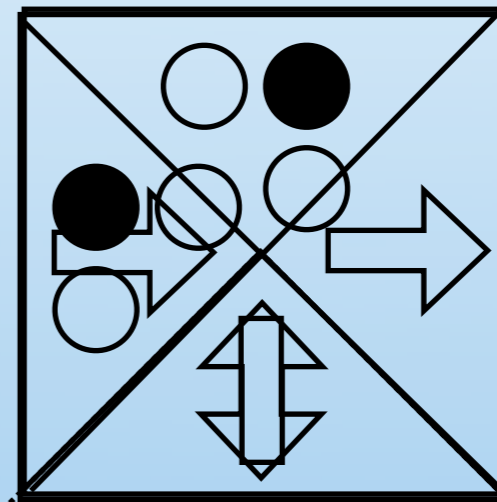
- a) Can any triangle tessellate the plane?
- b) Can any quadrilateral tessellate the plane?



# Day 56

## 1. Opener

- a) Re-draw the following figure rotated  $90^\circ$  clockwise across its axis.
- b) Why can you tessellate a square and a hexagon, but not a pentagon?
- c) A rectangle is cut twice -- once vertically and once horizontally. The four smaller rectangles have areas 45, 25, 15, and  $x$ . Find  $x$ .
- d) What is the percent probability a dollar bill has trace amounts of cocaine on it?

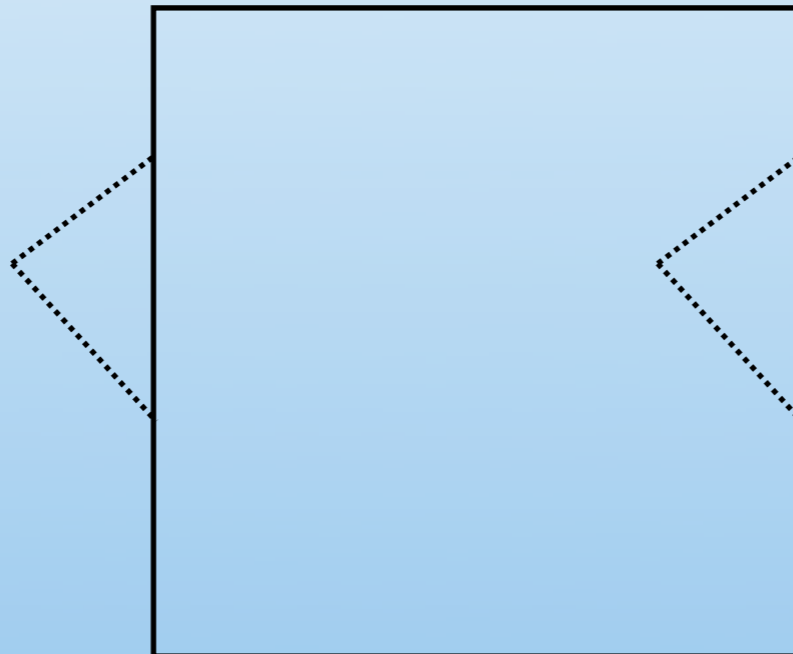


## 2. Notes - Carving Translations



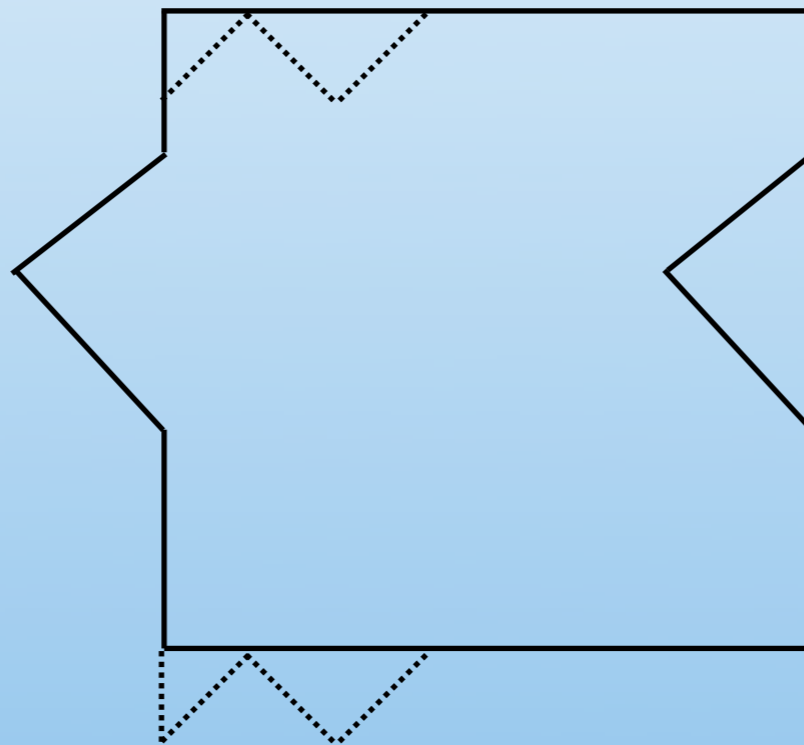
Thus far we've only investigated the boring tessellations. All squares. Hoo-ray.

## 2. Notes - Carving Translations



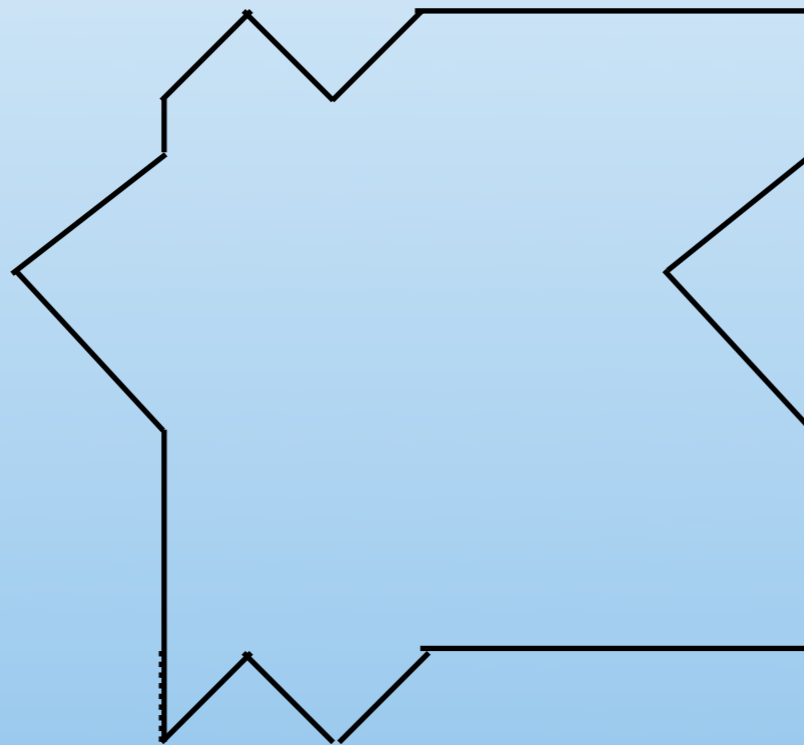
But even cool ones can start with a square.

## 2. Notes - Carving Translations



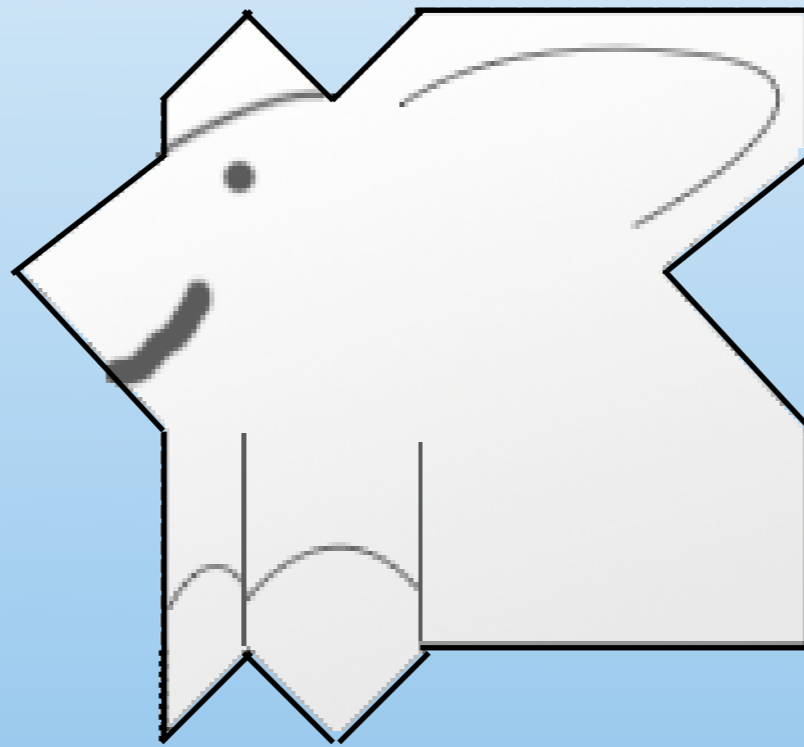
Show the cuts. Where do I move this piece I cut so that the shape tessellates?

## 2. Notes - Carving Translations



So what do you see?

## 2. Notes - Carving Translations



Chuckles the Happy Two-Legged Elephant

Do you know what's special about Chuckles?



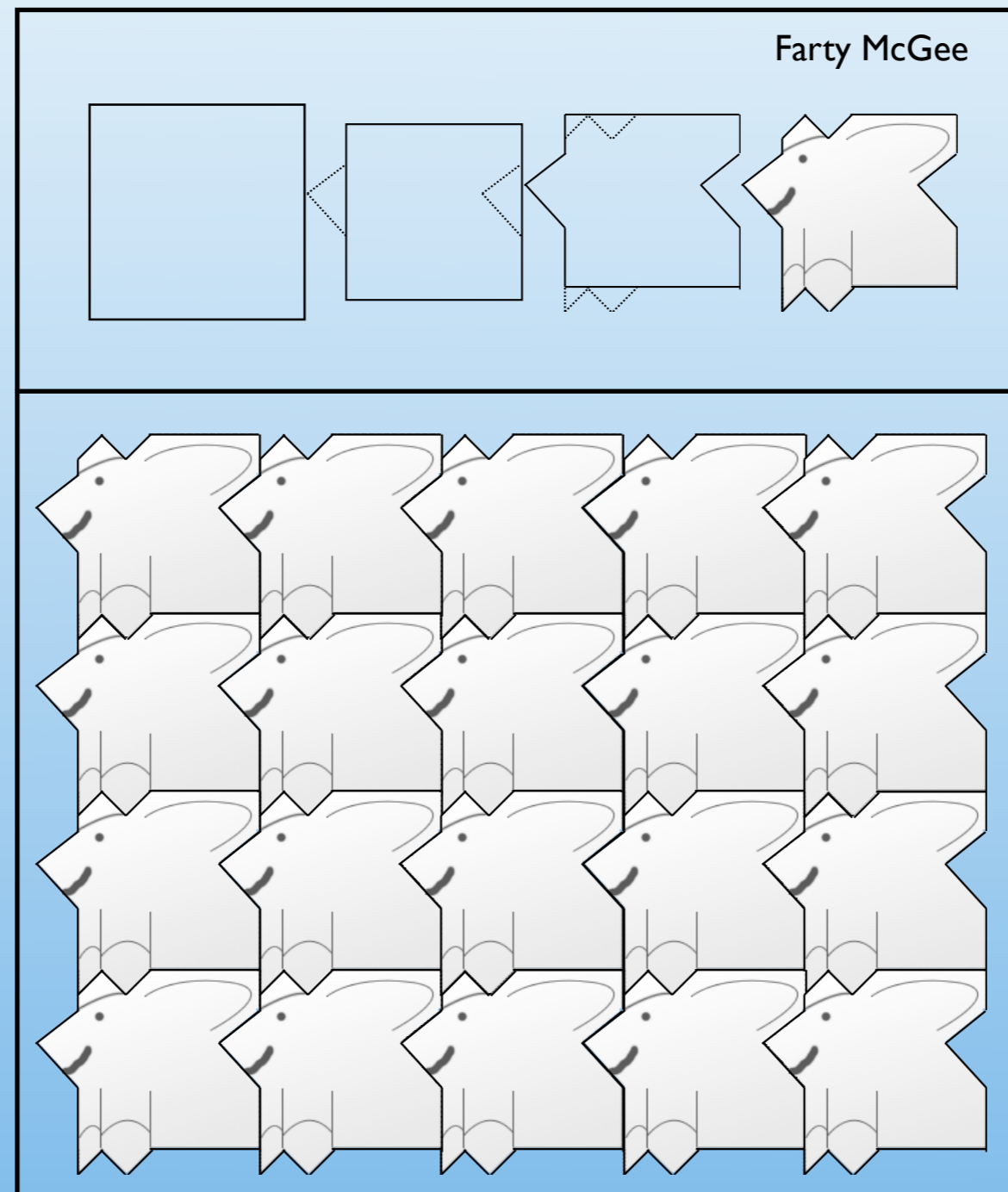
## 2. Notes - Carving Translations

He has friends!



Do you see the square?

### 3. Tessellation Assignment #1 - Squares



Give the assignment. Discuss how it should look.

# Day 57

## 1. Opener

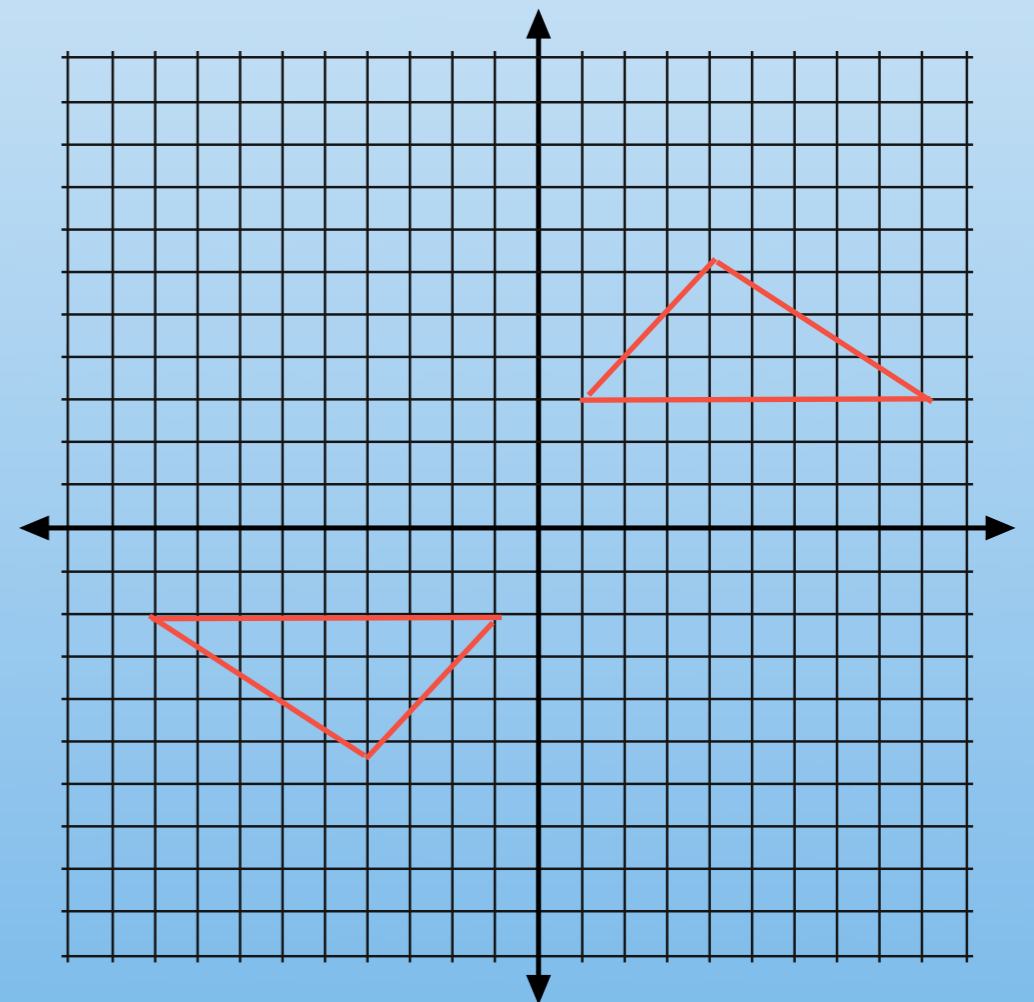
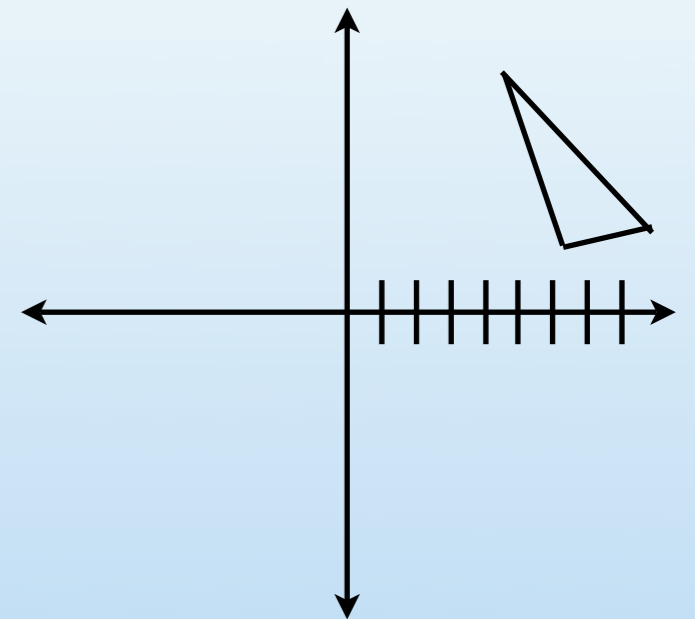
- a) Sketch the figure after applying the translation:

$$(x, y) \longrightarrow (x - 4, -y)$$

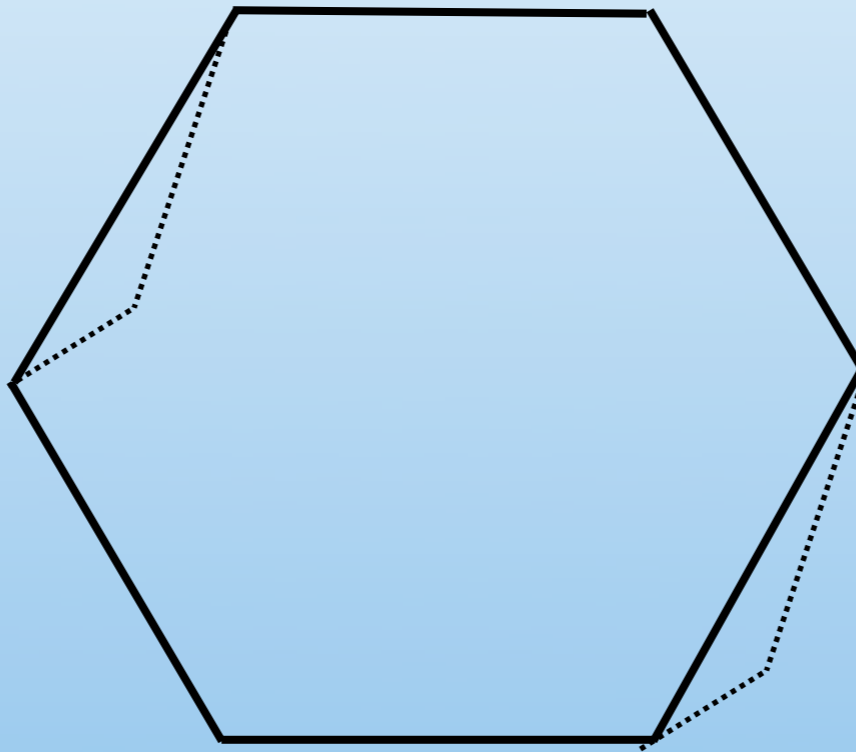
- b) Describe the translation between A and A'

- c) Put a square on each edge of an equilateral triangle and connect the outside vertices of adjacent squares to form a hexagon. Is this hexagon equilateral, equiangular, both, or neither?

- d) What percent of car accidents are caused by sleep deprivation?

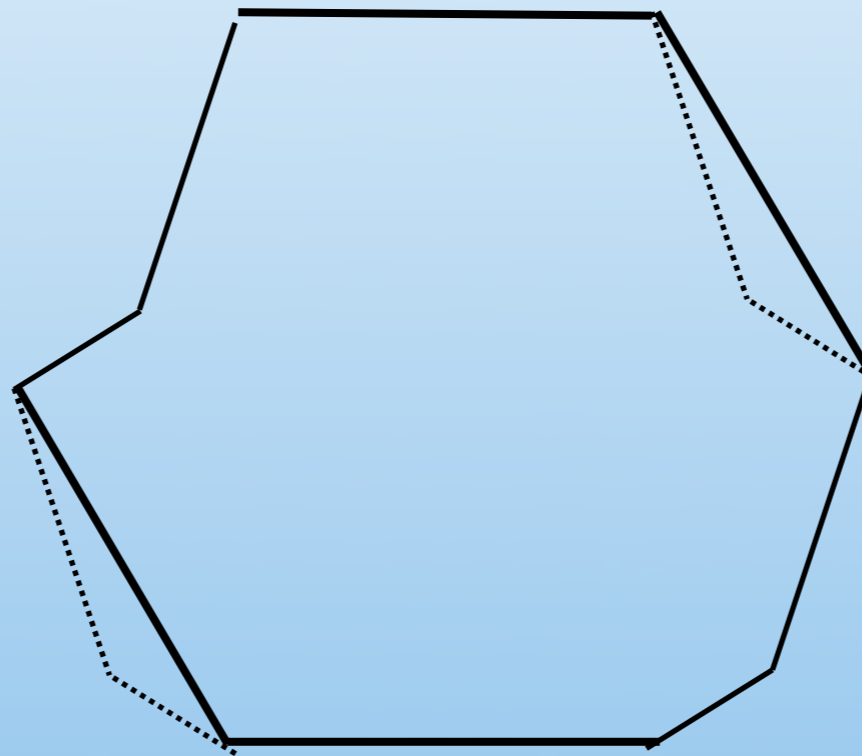


## 2. Notes - Carving Tessellations from Hexagons



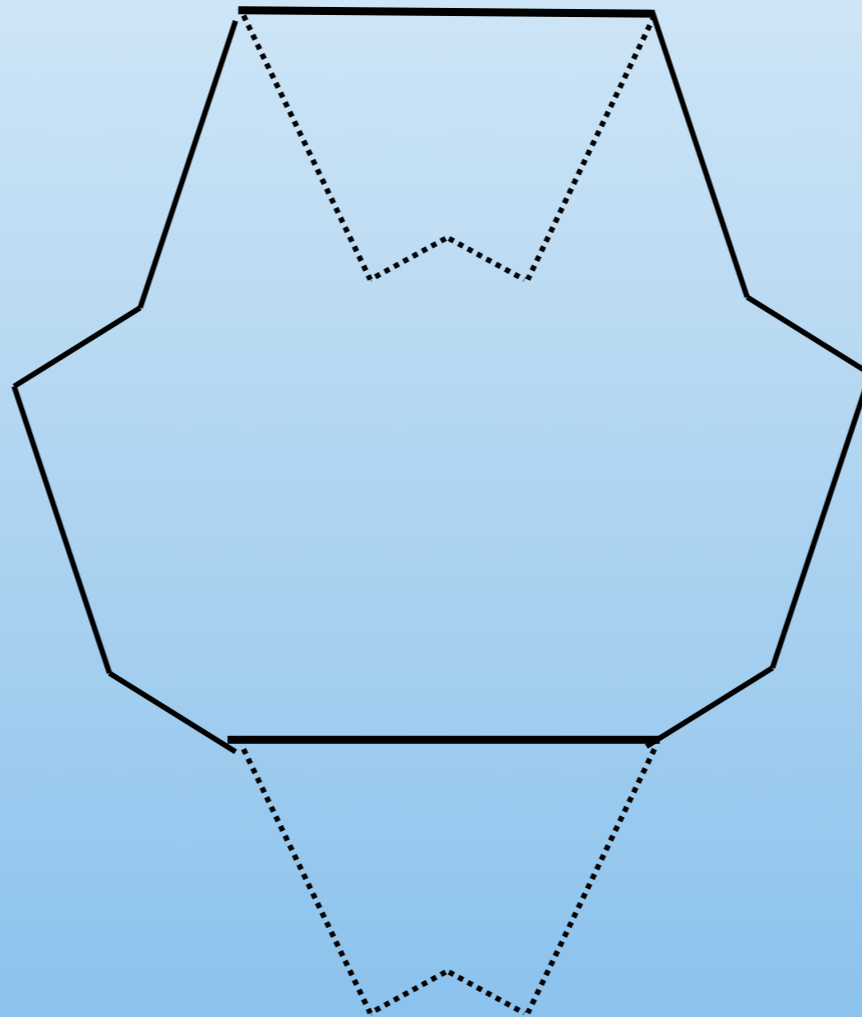
You can also use hexagons to make tessellations.

## 2. Notes - Carving Tessellations from Hexagons



Show how to make the cuts.

## 2. Notes - Carving Tessellations from Hexagons



Do you see it? Do you?!

## 2. Notes - Carving Tessellations from Hexagons

The Angry Wolf That Lives Under Your Bed  
And Waits For You To Fall Asleep

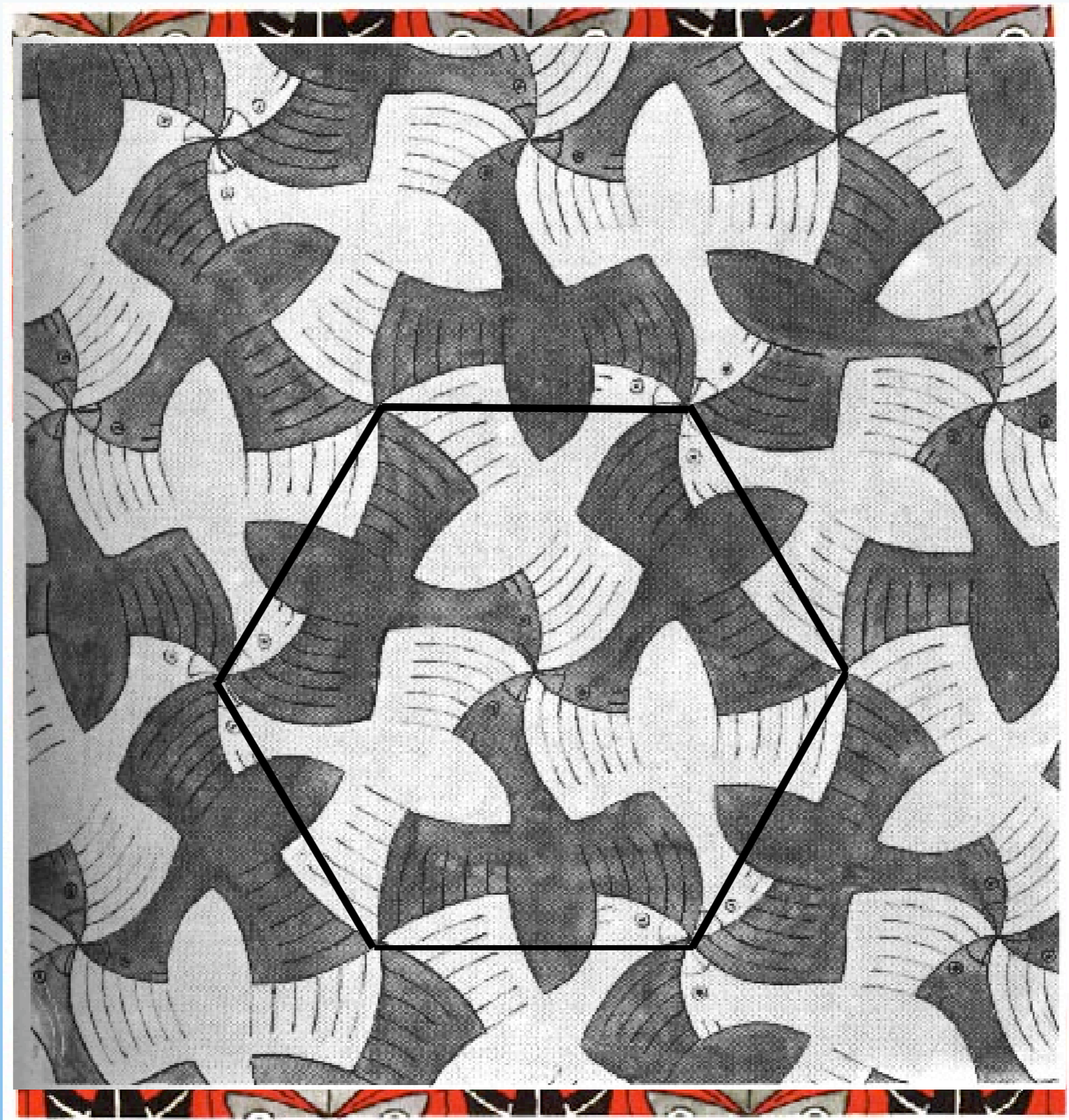


And do you know what's special about The Angry Wolf?

## 2. Notes - Carving Tessellations

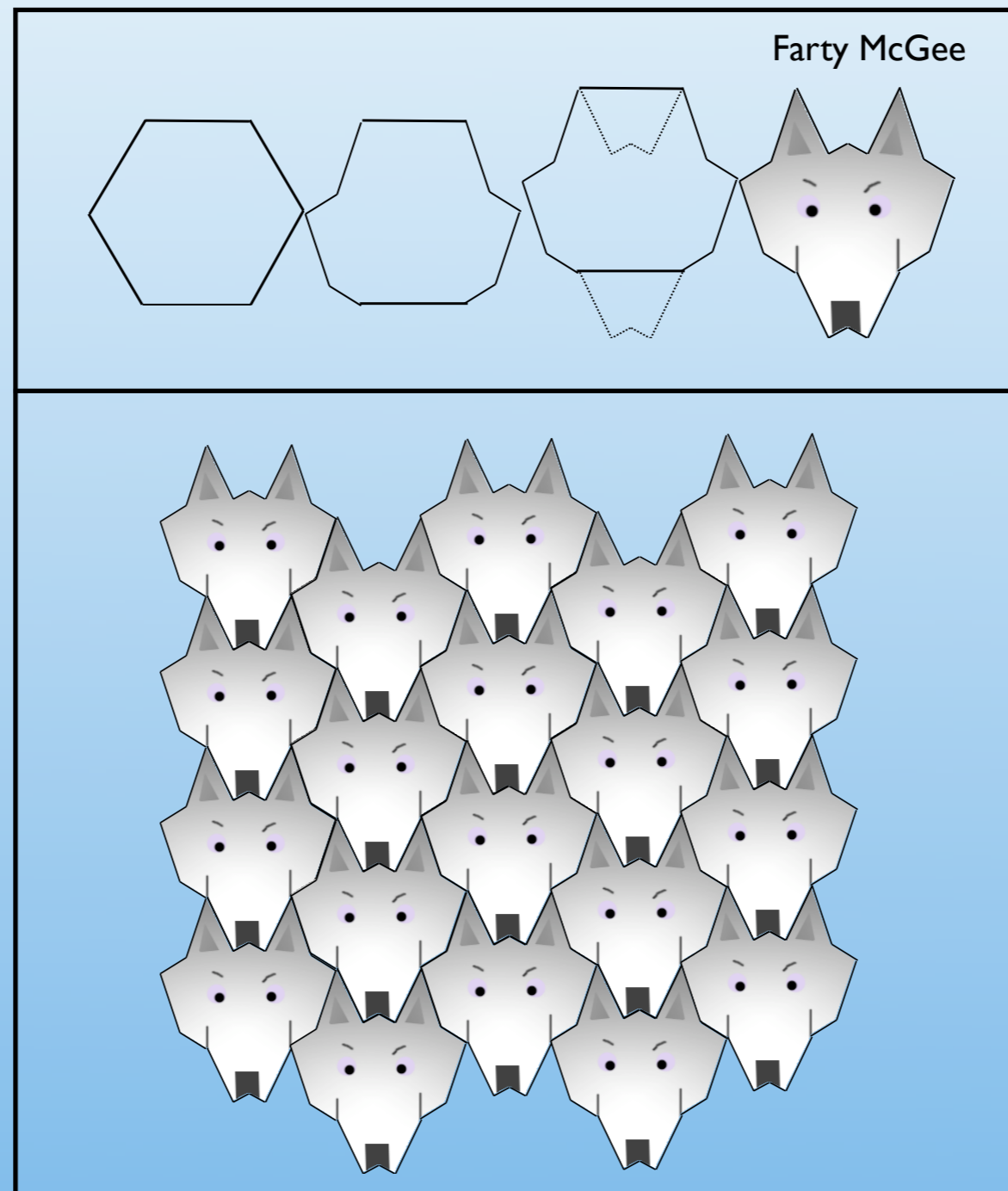


He's got friends.



Do you see the hexagons?

### 3. Tessellation Assignment #2 - Hexagons



Introduce the second part of the project.

**4. Break**

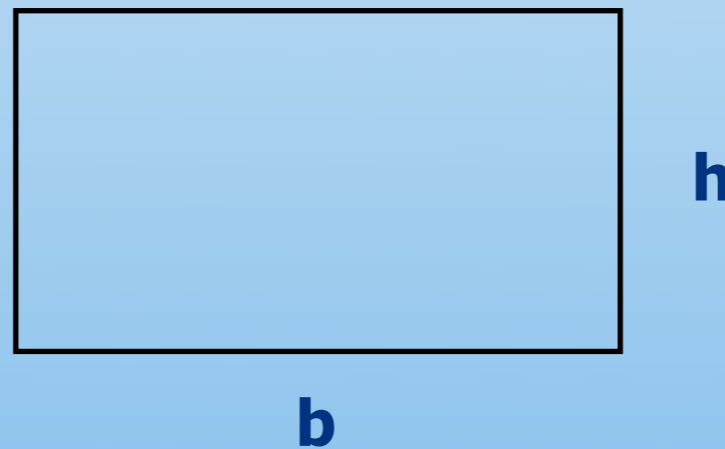
**5. Show and Tell**

## 6. Notes - Area

### Rectangle Area

The area of a rectangle with base **b** and height **h** is

$$A = bh$$

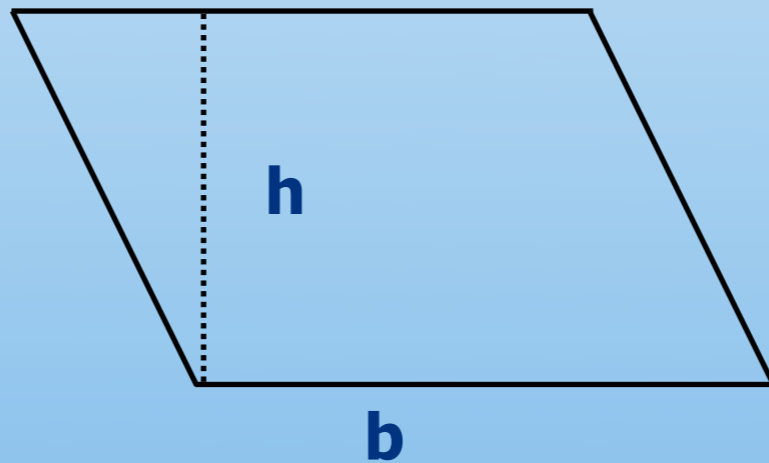
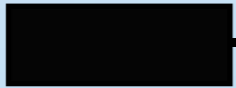


We're bypassing any investigations here. This was a standard in, I dunno, sixth grade? So we're just going to review.

## 6. Notes - Area

### Parallelogram Area

The area of a parallelogram with base **b** and height **h** is

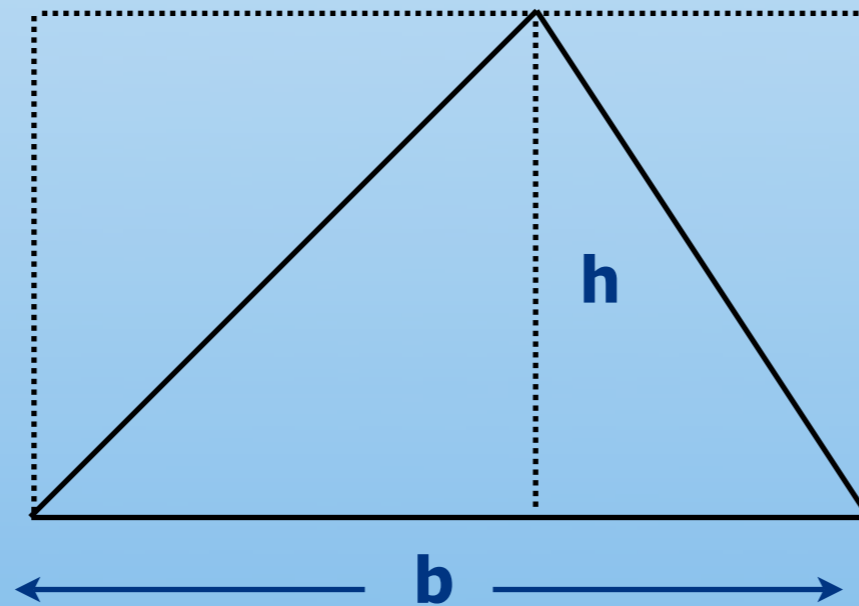
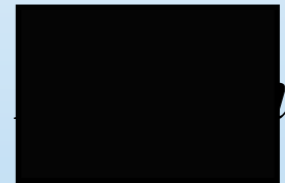


Show them how to build a rectangle from the pieces.

## 6. Notes - Area

### Triangle Area

The area of a triangle with base **b** and height **h** is



Show them how to double the triangle to make a rectangle.

## 6. Notes - Area

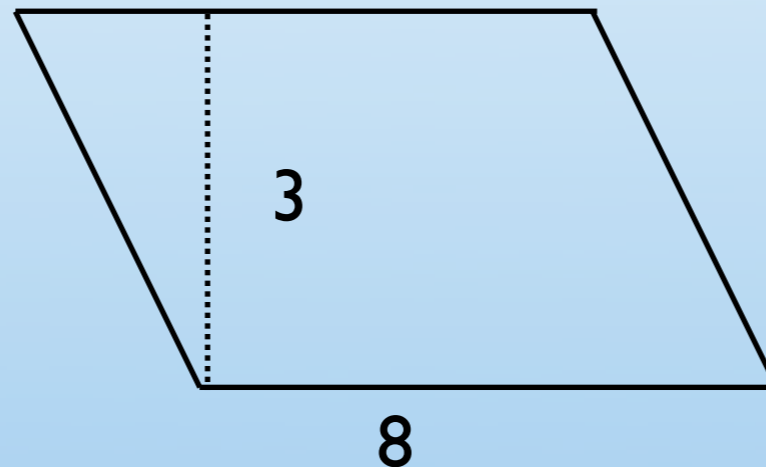
Rectangle



$$A = 36$$

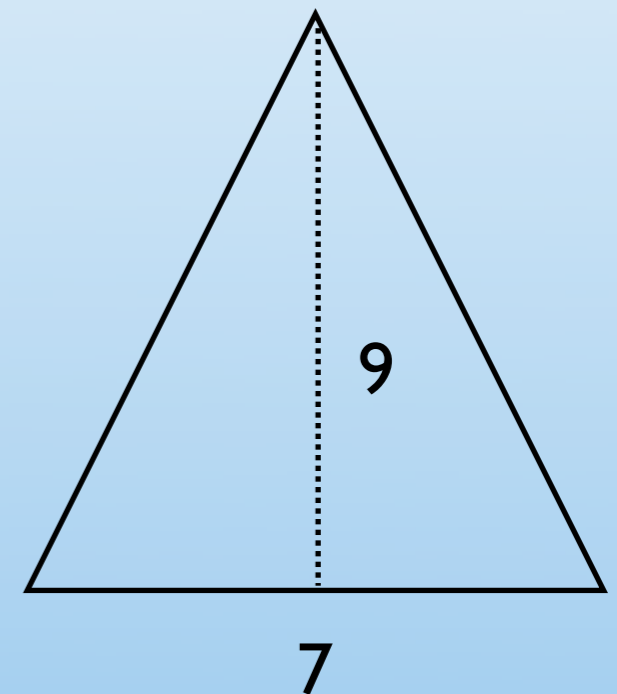
$$P = 22$$

Parallelogram



$$A = 24$$

Triangle



$$A = 31.5$$

## 7. Classwork

pg. 413 // #1 - 14, 17, 23, 24