

# My Math Notes



**Try keeping mathematics notes!**  
**Write down what you thought and**  
**how you tried to solve problems.**

Sofia



**In your notebook,**  
**record:**

- Date
- <Problem>
- <My Idea>
- <Reflection>

**As <Reflection>**  
**record:**

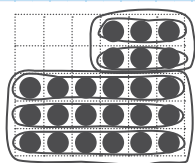
- What you came to understand
- Important points

December 13

<Problem>

How many chocolates are in a box altogether? Think about many different ways to find the answer.

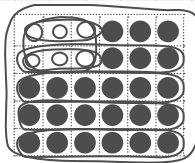
<My Idea> ①



$$\begin{aligned} 3 \times 2 &= 6 \\ 6 \times 3 &= 18 \\ 6 + 18 &= 24 \end{aligned}$$

Answer 24 chocolates

<My Idea> ②



$$\begin{aligned} 6 \times 5 &= 30 \\ 3 \times 2 &= 6 \\ 30 - 6 &= 24 \end{aligned}$$

Answer 24 chocolates

<Reflection>

By finding groups of chocolates with the same number in each, I could use multiplication.

When you make a mistake, do not erase the mistake with your eraser. Cross out and write the correct answer next to it.



Michael



$$6 \times 3 = \cancel{16} 18$$

$$\cancel{6 + 16 = 22} \quad 6 + 18 = 24$$

Answer 22 chocolates    24 chocolates



When studying mathematics, use what you learned before. Keep a good record of your learning in your notes.



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Write down friends' ideas that you thought were good.

As <Reflection> record:

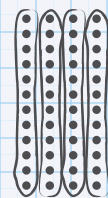
- What you came to understand
- What you want to examine next
- What you thought as you listened to your friends' ideas

April 18

<Problem>

Let's find out many different ways to answer  $12 \times 4$ .

<My Idea>



$$12 + 12 + 12 + 12 = 48$$

Answer 48

<Friend's Idea>

Chloe

$$12 \times 4 < \begin{array}{l} 10 \times 4 = 40 \\ 2 \times 4 = 8 \\ \hline \text{All together } 48 \end{array}$$

<Summary>

We can also find the answers for something like  $12 \times 4$ , if we use the multiplication facts from 1 to 9 for the multiplication facts of 10.

Emma



<Reflection>

I was happy to see that if we use our knowledge of multiplication and addition, we can find the answers to the multiplication of large numbers.

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out with  $\equiv$ .



$$\begin{array}{l} 12 \times 1 = 12 \\ 12 \times 2 = 24 \\ 12 \times 3 = 36 \\ 12 \times 4 = 48 \end{array}$$

Arrows indicate adding 12 to each previous result to get the next one.

Logan

$$12 \times 4 < \begin{array}{l} 10 \times 4 = 40 \\ 2 \times 4 = 8 \\ \hline \text{Altogether } 48 \end{array}$$

I used Jacob's idea from the lesson on April 15.



Chloe

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

In a balloon I write down things I thought about or points to be careful about.

Michael

$$15 \times 6 < \begin{array}{l} 10 \times 6 = 60 \\ 5 \times 6 = 30 \\ \hline \text{Altogether } 90 \end{array}$$

A balloon icon contains the text: "Divide it into 10 and something!"



See what your friends wrote in their Reflections.

Jacob



<Reflection>

I thought Chloe's way was terrific because she separated 12 into 10 and 2. It looks like that idea can be used every time.

Chloe



<Reflection>

If we use what we studied today, it looks like we can make multiplication facts for 12. I want to make the multiplication facts for 13 too.



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Jacob



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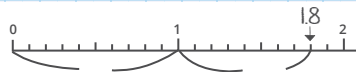
October 24

&lt;Problem&gt;

What kind of number is 1.8?

Think about many different ways to express the number.

&lt;My Idea&gt;



$$1.8 = 1 + 0.8$$

1.8 is made of 1 and 0.8 added together

&lt;Friend's Idea&gt;

(Michael)



There are 18 0.1's

1.8 is made of 18 0.1's

&lt;Summary&gt;

If we look at 1.8 as 1 and something, or think about how many 0.1's there are,

Jacob



&lt;Reflection&gt;

I understood that a decimal number also can be expressed in many ways. If we use a number line it is easier to understand.

### Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out with  $\equiv$ .



Michael

1.8 is made of ~~1.8~~ 0.1's  
18

We used number lines in the lesson on October 17th.

Logan



When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

In a balloon I write down things I thought about or points to be careful about.

Sofia



1.8 is made of 18 0.1's



We can think of decimal numbers as if they were whole numbers.

See what your friends wrote in their Reflections.



Michael



&lt;Reflection&gt;

It was interesting to think about how many 0.1's there are in a decimal number. I would like to find out how many 0.1's there are in other decimal numbers.

Emma



&lt;Reflection&gt;

I came up with the idea of 1 and 0.8 added together. Chloe thought of subtracting from 2. I thought it was a great idea.



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Chloe



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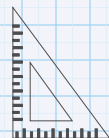
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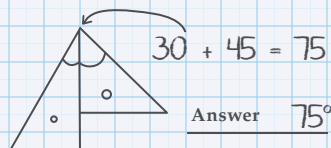
April 26

&lt;Problem&gt;

Using a pair of set squares, make different angles.



&lt;My Idea&gt;

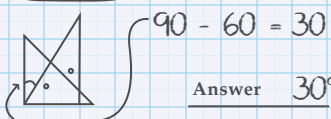


I combined a pair of set squares.

Answer  $75^\circ$ 

&lt;Friend's Idea&gt;

(Michael)



He overlapped a pair of set squares.

Answer  $30^\circ$ 

&lt;Summary&gt;

You can make many angles by combining angles on set squares differently.

Chloe

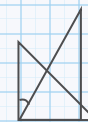


&lt;Reflection&gt;

Today, we made many different angles by combining angles on a pair of set squares. I learned that it is possible to make angles like  $15^\circ$  and  $75^\circ$  without using a protractor.

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.



$$\begin{array}{r} \cancel{90 - 30 = 60} \\ 90 - 60 = 30 \end{array}$$

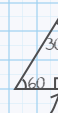
I was going to subtract  $60^\circ$ , but I subtracted  $30^\circ$  instead.



Michael



We studied this on April 19. A right angle's measurement is  $90^\circ$ .



Emma

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

In a balloon I write down things I thought about or points to be careful about.



Logan

I need to learn the measurements of angles on the set squares.



See what your friends wrote in their Reflections.

Jacob



&lt;Reflection&gt;

I thought about ways to add two angle measurements. I was very impressed by Michael because he thought about using subtraction by overlapping the set squares.

Sofia



&lt;Reflection&gt;

I understand that if we use subtraction, we can make many more angles. If we use the idea of an "outside angle" studied on April 21, we may be able to make even more angles.





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Michael

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- <Reflection>

Write down friends' ideas that you thought were good, or that may be useful in the future.

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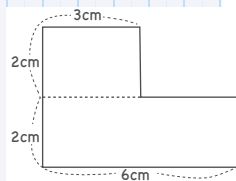
- What you came to understand
- What you want to examine next
- What you thought as you listened to your friends' ideas

November 18

&lt;Problem&gt;

Determine the area of the shape on the right.

&lt;My Idea&gt;



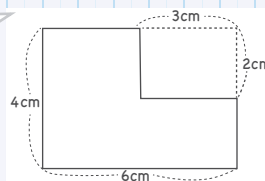
$$(2 \times 3) + (2 \times 6) = 18$$

Answer  $18\text{cm}^2$ 

I solved it by splitting the shape into 2 rectangles.

Emma

&lt;Friend's Idea&gt;




$$(4 \times 6) - (2 \times 3) = 18$$

Answer  $18\text{cm}^2$ 

From a large rectangle, she subtracted a small rectangle.


&lt;Summary&gt;

I learned that we can determine the area of a shape like  by making use of rectangles and squares.

Michael



&lt;Reflection&gt;

I learned that by splitting the shape into rectangles, it is easy to determine the area of a shape like .

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.

$$(4 \times 6) - (2 \times 3) = \cancel{16}^{18}$$

calculation mistake



Emma

$$(2 \times 3) + (2 \times 6) = 18$$

I used the formula we learned about on November 18th to find the area of a rectangle.



Logan

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

In a balloon I write down things I thought about or points to be careful about.

Check where the vertical and horizontal sides of a rectangle are before writing a math sentence.



Sofia



See what your friends wrote in their Reflections.



Logan



&lt;Reflection&gt;

Everyone used 2 rectangles to find the area. Using what we studied today, I want to try lots of different problems.

Chloe



&lt;Reflection&gt;

I was impressed because Emma thought about subtracting a small rectangle from a large one. I want to be able to think like that too.



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Logan



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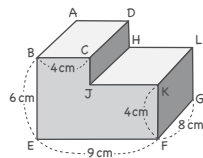
As <Reflection> record:

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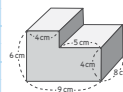
April 22

&lt;Problem&gt;

Find the volume of the solid shape on the right.



&lt;My Idea&gt;



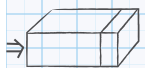
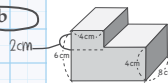
$$(8 \times 4 \times 6) + (8 \times 5 \times 4) = 352$$

Answer  $352\text{cm}^3$ 

I split the shape into two box shapes.

&lt;Friend's Idea&gt;

Jacob

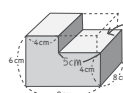


He cut the top part and moved it to the side of the bottom part.

$$8 \times (9 + 2) \times 4 = 352$$

Answer  $352\text{cm}^3$ 

Chloe

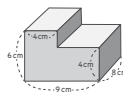


$$(8 \times 9 \times 6) - (8 \times 5 \times 2) = 352$$

Answer  $352\text{cm}^3$ 

She subtracted the volume of the small box shape that was added on from the large one.

&lt;Summary&gt;



We can find the volume of a shape like the one on the left by using cubes and box shapes.

Logan



&lt;Reflection&gt;

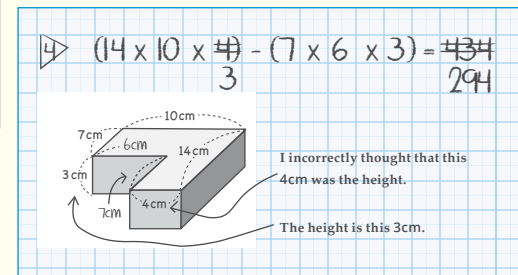
I thought about splitting the shape into two square shapes. After listening to Jacob and Chloe, I thought it was interesting that there were so many ways to think about this problem.

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.



Emma



$$8 \times (9 + 2) \times 4 = 352$$

I used the formula to calculate the volume of box shapes learned on April 21.



Jacob

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

In a balloon I write down things I thought about or points to be careful about.



Sofia

I need to make sure which dimensions of box shapes are the length, width, and height.



See what your friends wrote in their Reflections.



Michael



&lt;Reflection&gt;

Today, we wrote math sentences to match the pictures shown by our friends. We also tried to figure out their ideas from the math sentences they wrote. I learned that math sentences show what we are thinking really well.

Chloe



&lt;Reflection&gt;

Today, we studied how to calculate the volume of a shape that looked like an L. I was able to find the volume using the same idea I used to find the area of an L-shape. I want to try to figure out the volume of other kinds of shapes, too.





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Sofia



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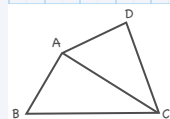
- What you came to understand
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November 4

&lt;Problem&gt;

What is the sum of the 4 angles of a quadrilateral?

&lt;My Idea&gt;



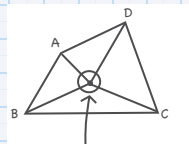
Since we already know about the sum of the 3 angles of a triangle is  $180^\circ$ , I split the quadrilateral into 2 triangles.

$$180 \times 2 = 360$$

Answer  $360^\circ$ 

&lt;Friend's Idea&gt;

Logan

Answer  $360^\circ$ Subtracted  $360^\circ$  here.

&lt;Summary&gt;

We can determine the sum of the 4 angles of a quadrilateral if we split it into triangles.

Sofia

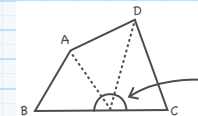


&lt;Reflection&gt;

We could figure out the sum of the 4 angles of a quadrilateral without actually measuring the angles by splitting it into triangles. I understand that it is important to use what we have learned before.

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.



$$180 \times 3 = 540$$

Answer ~~540~~

We have to subtract  $180^\circ$  here from  $540^\circ$ .

$$540 - 180 = 360$$

Answer  $360^\circ$ 

Michael



$$180 \times 2 = 360$$

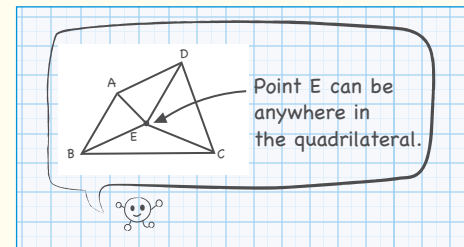
We are using what we learned on November 2, "The sum of the 3 angles of any triangle is  $180^\circ$ ."

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

Chloe



In a balloon I write down things I thought about or points to be careful about.



Jacob



See what your friends wrote in their Reflections.



Logan



&lt;Reflection&gt;

Even though the answer is the same,  $360^\circ$ , there are many different ways to figure this out. It was interesting that everyone was using the idea of splitting the quadrilateral into triangles.

Emma



&lt;Reflection&gt;

I split the quadrilateral into 2 triangles. Others used 3 or more triangles, but I thought mine was the simplest. I think I can use the method with other geometric shapes.



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Jacob



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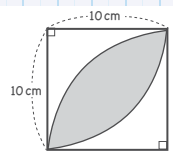
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April 15

&lt;Problem&gt;

Think about how to calculate the area of the shaded part of the shape on the right



&lt;My Idea&gt;

$$\text{Square} - \text{Quarter Circle} = \text{Shaded Area}$$

This part is  $28.5\text{cm}^2$ 

$$78.5 - 50 = 28.5$$

Answer  $57\text{cm}^2$ 

$$\text{Shaded Area} \times 2 = 57$$

If you subtract the  $\text{Quarter Circle}$  from the  $\text{Square}$  and then double it, you get a  $\text{Shaded Area}$ .

&lt;Friend's Idea&gt;

Michael

$$\text{Square} + \text{Square} - \text{Overlapping Part} = \text{Shaded Area}$$

$$78.5 + 78.5 - 100 = 57$$

Answer  $57\text{cm}^2$ 

If you subtract a  $\text{Square}$  the overlapping part, the  $\text{Shaded Area}$  will be left.

&lt;Summary&gt;

Even shapes like  $\text{Shaded Area}$  can be found in many ways if we combine shapes like  $\text{Square}$ ,  $\text{Quarter Circle}$ ,  $\text{Triangle}$ .

&lt;Reflection&gt;

At first, I wasn't sure if we could calculate the area of this shape. But, by combining the shapes we already learned, I was able to calculate the area. I enjoyed thinking about how to combine different shapes.

Jacob



## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.

$$78.5 - 50 = 28.5$$

Answer  ~~$28.5\text{cm}^2$~~ 

$28.5$  is only for the  $\text{Quarter Circle}$ . So, we must do  $28.5 \times 2$ .

We are calculating the area of this shape.

Chloe



$$10 \times 10 \times 3.14 \div 4 = 78.5$$

I used the method of calculating the area of  $\frac{1}{4}$  of a circle we learned on April 14.

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

Logan



In a balloon I write down things I thought about or points to be careful about.

Try not to forget to " $\div 4$ " the area of a circle, or to " $\div 2$ " in the formula for the area of a triangle.



Emma



See what your friends wrote in their Reflections.



Michael



&lt;Reflection&gt;

We thought about what other people were thinking by looking at their diagrams and math sentences. I learned that math sentences express what a person is thinking. I want to study more about interpreting other people's diagrams and math sentences.

Sofia



&lt;Reflection&gt;

I subdivided the shape to find the area, but Michael thought of subtracting the area of a square so that the overlapping part will be left. Our class used a similar method before, when we used it with this problem, I thought, "I get it!"





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Emma



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April 15

&lt;Problem&gt;

Look at the table below and think about how to get 300 sheets of construction paper without counting them all.

Number of Sheets and Weight of Construction Paper

Number of sheet x (sheets)	10	30	300
Weight y(g)	73	219	□

&lt;My Idea&gt;

$$73 \div 10 = 7.3 \quad 7.3 \times 300 = 2190$$

Answer We need to get 2190g of construction paper.

If you divide 73 by 10, we can get the weight of 1 sheet of construction paper, 7.3g. The weight of 300 sheets of construction paper can be calculated by multiplying 7.3 by 300. So, if we get 2190g of construction paper, we will have 300 sheets.

&lt;Friend's Idea&gt;

Chloe

Number of sheet x (sheets)	30	300
Weight y(g)	219	□

$300 \div 30 = 10$  (the number of sheets is 10 times as many)  
Since the weight is proportional to the number of sheets, the weight will also be 10 times as much.

$$219 \times 10 = 2190$$

Answer We need to get 2190g of construction paper.

&lt;Summary&gt;

If we use the fact that the weight is proportional to the number of sheets, we can get the necessary number of sheets of construction paper by weighing them.

Emma



&lt;Reflection&gt;

I solved the problem by finding out the weight of 1 sheet of construction paper. But, I learned that, like Chloe did, we can also use the fact that 300 sheets is 10 times as many as 30 sheets to solve the problem.

## Think about ways to improve your notes

When I make a mistake, instead of erasing it, I cross it out and write the correct answer next to it.

Sofia



$$73 \div 10 = 7.3$$

$$7.3 \times 300 = \cancel{2090} \quad 2190$$

I made a mistake on the calculation of  $7.3 \times 300$

Answer  $\cancel{2090g}$   
2190

Number of sheet x (sheets)	10	30	300
Weight y(g)	73	219	□

We used the idea that we learned on October 31, "When x becomes 2, 3, ... times as much, y, also becomes 2, 3, ... as much."

When we use an idea that we learned before, I write down the date of that lesson from My Math Notes.

Chloe



In a balloon I write down things I thought about or points to be careful about.

Michael



The constant, 7.3 and the weight of 1 sheet of construction paper, 7.3g, are equal, aren't they?



See what your friends wrote in their Reflections.

Logan



&lt;Reflection&gt;

I thought the idea of a proportional relationship is useful because we can figure out the number of sheets by weighing the paper instead of counting them all. I want to study more about how to use proportional relationships in other situations.

Jacob



&lt;Reflection&gt;

Since Chloe and Logan were thinking that 300 sheets of construction paper is how many times as much as another number, I thought their ideas were similar.