Make sense of problems and persevere in solving them. Mathematical Practice 1

When presented with a problem, I can make a plan, carry out my plan, and check its success.

BEFORE...

EXPLAIN the problem to myself.

MAKE A PLAN to solve the problem

- *What is the question?*
- *What do I know?*
- *What do I need to find out?*
- *What tools/strategies will I use?*

DURING...

PERSEVERE (Stick to it!)

MONITOR my work

ASK myself, "Does this make sense?"

CHANGE my plan if it isn't working out

AFTER...

CHECK

- *Is my answer correct?*
- *How do my representations connect to my solution?*

EVALUATE

- *What worked/didn't work?*
- *How was my solution similar or different from my classmates'?*

Reason abstractly and quantitatively.

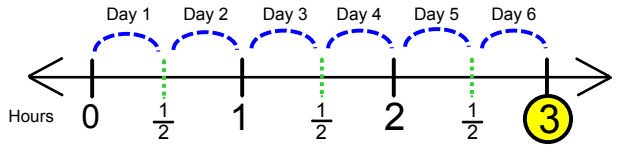
Mathematical Practice 2

I can use numbers, words, and reasoning habits to help me make sense of problems.

Contextualize (Numbers to Words)

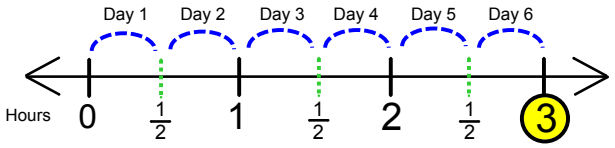
$\frac{1}{2} \times 6 = 3$ *or* $6 \times \frac{1}{2} = 3$

Mary practices the piano $\frac{1}{2}$ hour a day for 6 days.
How many total hours does she practice?



Decontextualize (Words to Numbers)

Mary practices the piano $\frac{1}{2}$ hour a day for 6 days.
How many total hours does she practice?



$\frac{1}{2} \times 6 = 3$ *or* $6 \times \frac{1}{2} = 3$

Reasoning Habits

1) Make an understandable representation of the problem.
2) Think about the units involved.
3) Pay attention to the meaning of the numbers.
4) Use the properties of operations or objects.

Construct viable arguments and critique the reasoning of others. Mathematical Practice 3

I can make logical arguments and respond to the mathematical thinking of others.

I can make and present arguments by...

- using objects, drawings, diagrams and actions
- using examples and non-examples
- relating to contexts

I can analyze the reasoning of others by...

- listening
- asking and answering questions
- comparing strategies and arguments

Model with mathematics.

Mathematical Practice 4

I can recognize math in everyday life and use math I know to solve problems.

I can...

My box turtle is getting a new tank. He is 5 1/2" long and 3" tall. One side length of the tank needs to be 5 times his length. How long will the length of the tank need to be?

Use **estimates** to make the problem simpler.

I will round 5 1/2" to 6".

Find **important numbers**.

Turtle: About 6" long

Tank: 5 times the length of the turtle

Use **tools** to **show relationships**.

Turtle Length (inches)	Tank Length (inches)
4	20
5	25
6	30
7	35
8	40

Think about the **relationship** to find an **answer.**

The tank (30") is 5 times bigger than the turtle length (6").

Consider my **answer** -- **Does it make sense?**

I thought about the problem again and a 30" side length on the tank makes sense!

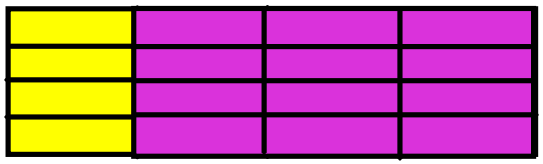
...to solve everyday problems.

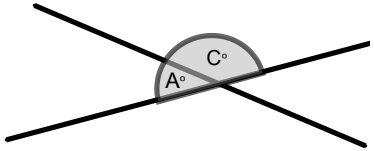
Use appropriate tools strategically.

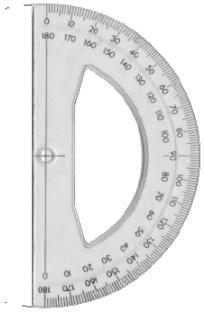
Mathematical Practice 5

I can use certain tools to help me explore and deepen my math understanding.

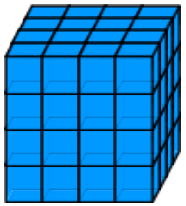
- I know *HOW* and *WHEN* to use math tools.
- I can reason: *"Did the tool I used give me an answer that makes sense?"*

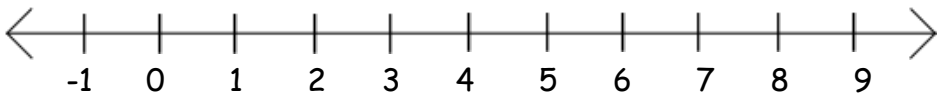






a x b = b x a





Attend to precision.

Mathematical practice 6

I can be precise when solving problems and clear when communicating my ideas.

Mathematicians communicate with others using...

symbol: equal

(the same as)

48 inches = 4 feet

units of measure

- math vocabulary with clear definitions
- symbols that have meaning
- context labels
- units of measure
- calculations that are accurate and efficient

Look for and make use of structure.

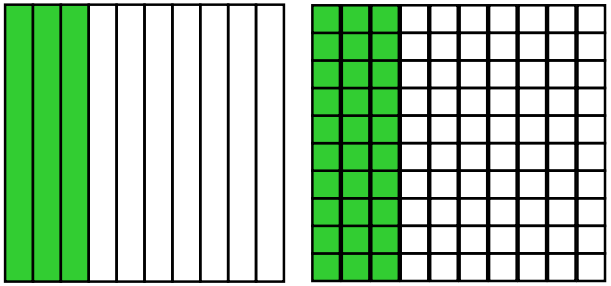
Mathematical Practice 7

I can see and understand how numbers and spaces are organized and put together as parts and wholes.

Numbers

For Example:

I know that $\frac{3}{10}$ is equal to $\frac{30}{100}$.

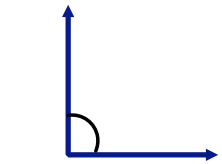


So, $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.

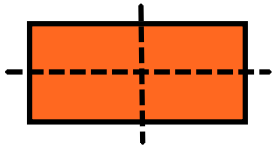
Equivalent Fractions

Spaces

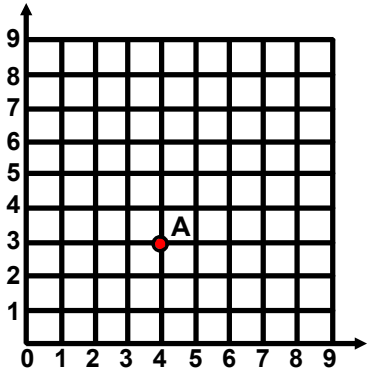
For Example:



Lines and Angles



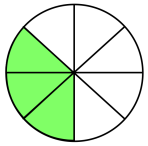
Symmetry



Location

Look for and express regularity in repeated reasoning. Mathematical Practice 8

I can notice when calculations are repeated. Then, I can find more general methods and short cuts.

As I work…	**There are many ways to decompose $\frac{3}{8}$ because it is composed of repeated $\frac{1}{8}$ s.** **I CAN…..**
…I think about what I'm trying to figure out while I pay attention to the details	***….draw*** a whole and shade in three $\frac{1}{8}$ s parts.  ***….add*** *eighths.* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ ***….count by*** *eighths.* *(one-eighth, two eighths, three eighths)* $\frac{3}{8} = \frac{1}{8}, \frac{1}{8}, \frac{1}{8}$
…I evaluate if my results are reasonable.	*….jump three $\frac{1}{8}$ size jumps on a number line.*