

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



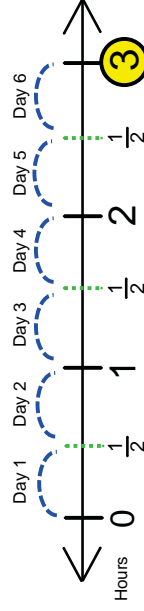
I can use numbers, words, and reasoning habits to help me make sense of problems.

Contextualize (Numbers to Words)

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

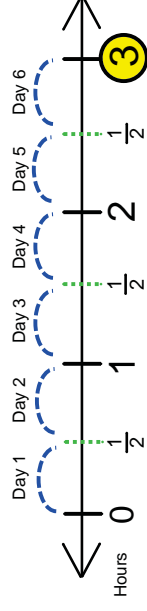


Mary practices the piano $\frac{1}{2}$ hour a day for 6 days.
How many total hours does she practice?



Decontextualize (Words to Numbers)

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



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

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.



Find important numbers.

Turtle: About 6" long
Tank: 5 times the length of the turtle



Consider my answer --
Does it make sense?



Think about the relationship to find an answer.



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

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

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

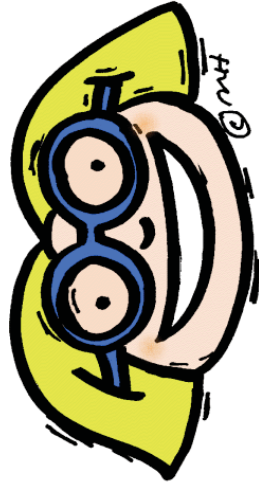
Use tools to show relationships.



...to solve everyday problems.

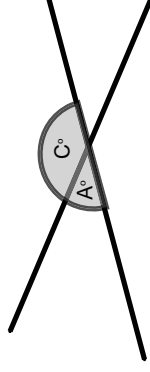
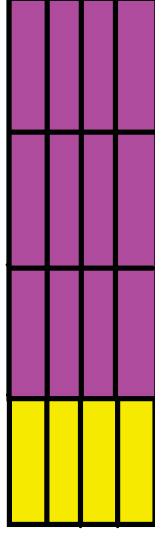
Use appropriate tools strategically.

Mathematical Practice 5

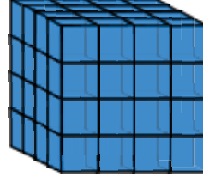
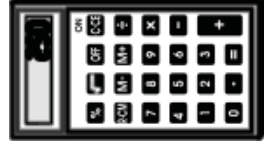
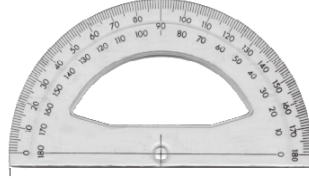


I can use certain tools to help me explore and deepen my math understanding.

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



$$a \times b = b \times a$$



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

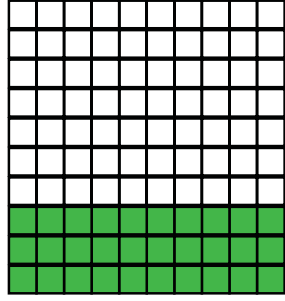


I can see and understand how numbers and spaces are organized and put together as parts and wholes.

Numbers

For Example:

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

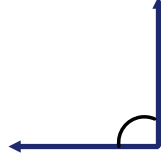


$$\text{So, } \frac{3}{10} + \frac{4}{100} = \frac{34}{100}.$$

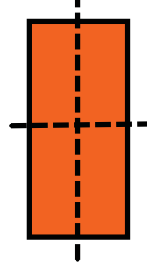
Equivalent Fractions

Spaces

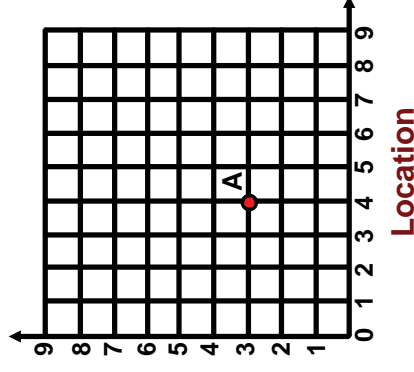
For Example:



Lines and Angles



Symmetry



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...

...I think about what I'm trying to figure out while I pay attention to the details

...I evaluate if my results are reasonable.

There are many ways to decompose $\frac{3}{8}$ because it is composed of repeated $\frac{1}{8}$ s.

I CAN.....

....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)

$$\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

....jump three $\frac{1}{8}$ size jumps on a number line.

