1.4- Problem Solving

Numeric:

Analyze	Calculate	Evaluate
what does it ask?	do the math	Does it make sense?

Non-Numeric:

Analyze	Solve
Problem?	make plan → implement plan

Aug 26-2:48 PM
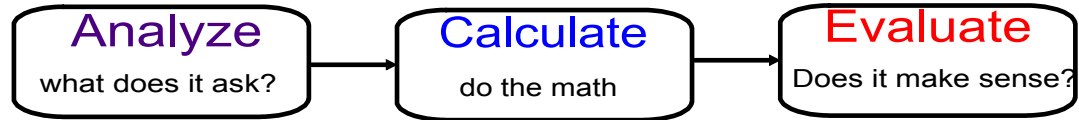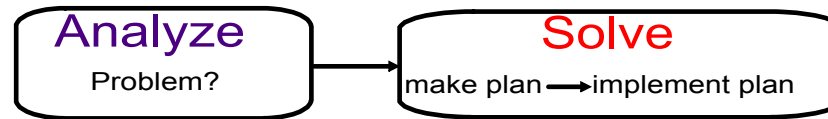
Problem Solving...

① Develop a plan

② Implement plan

Implementing a Plan

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Two different kinds of problems...

numeric

with #'s

non-numeric

without #'s

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Solving Numeric Problems

1 Analyze → **2** Calculate → **3** Evaluate

what does it ask?

do math.

does it make sense?

Jul 7-1:40 PM
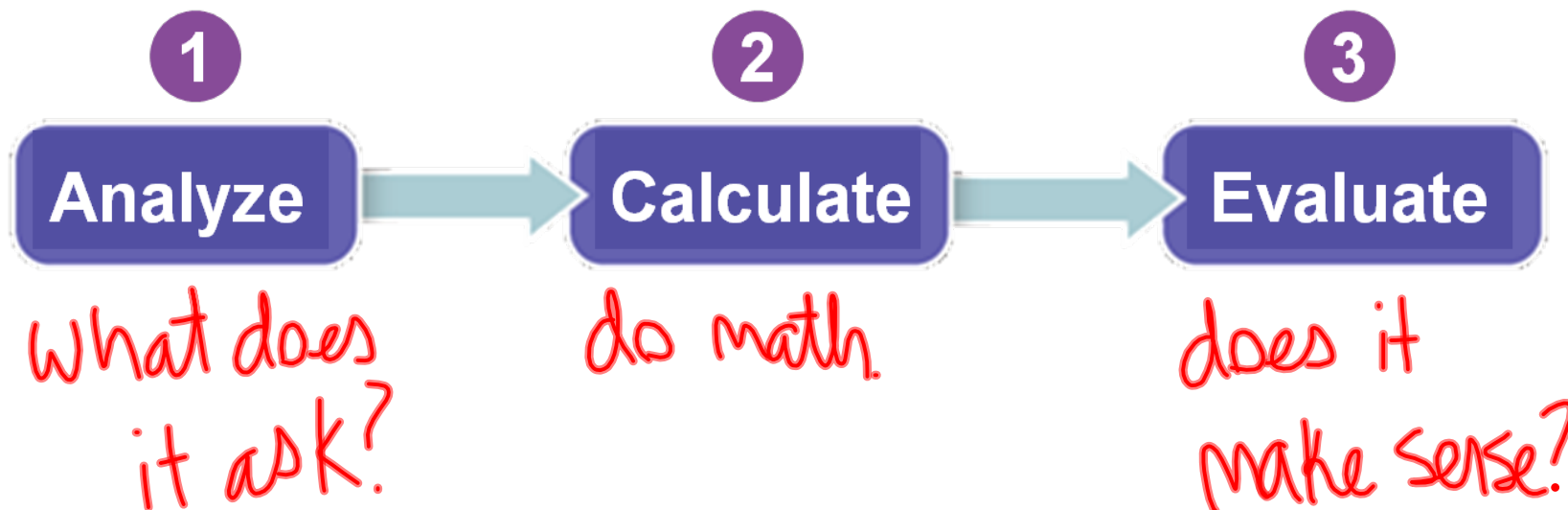
Estimate Walking Time

You are visiting Indianapolis. You decide to walk from the Indiana State Capital to the Murat Centre for an afternoon performance.

According to the map, the shortest route from the capital to the theater is 8 blocks. How many minutes will the trip take if you can walk 1 mile in 20 minutes?

Assume that 10 blocks equals 1 mile.

Jul 7-1:40 PM
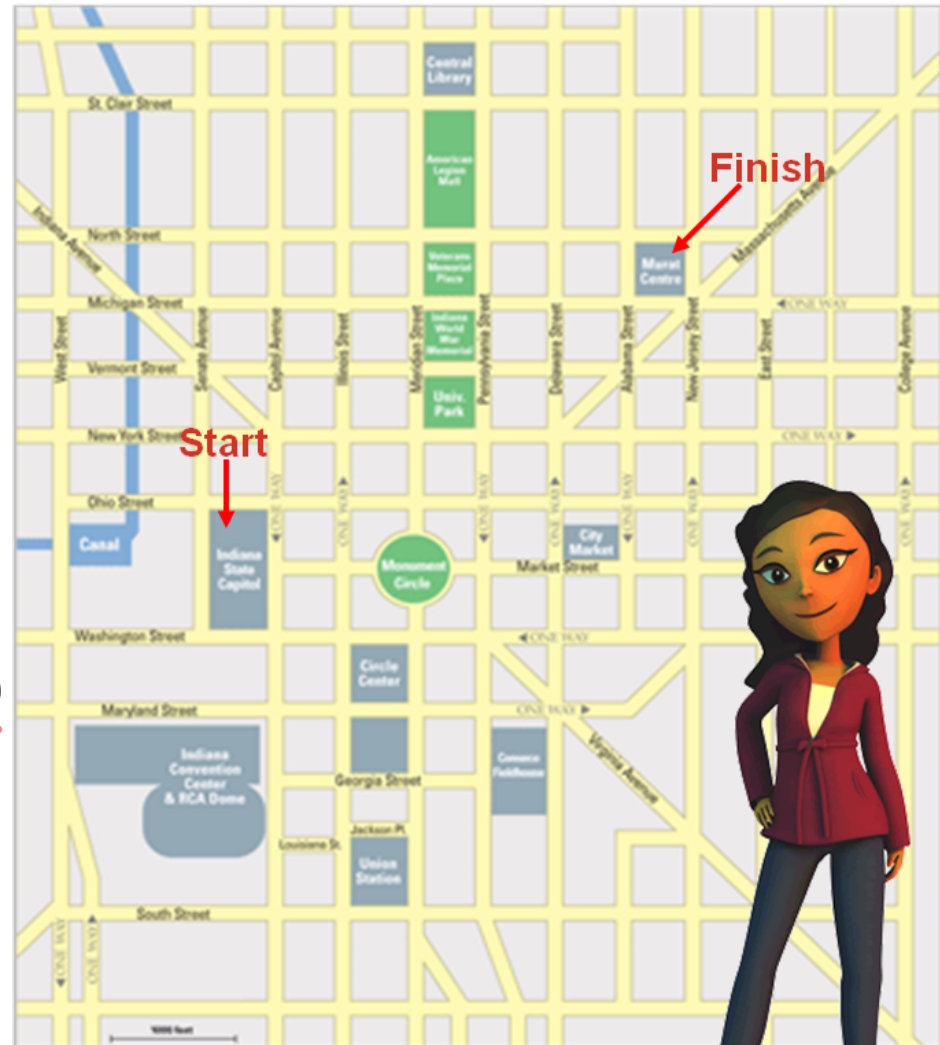
①Analyze **List the knowns and the unknown.**

KNOWNS

distance to be traveled = 8 blocks
walking speed = 1 mile/20 min
1 mile = 10 Blocks

UNKNOWN

How long is the trip?

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2 **Calculate** **Solve for the unknown.**

10 block = 1 mi.   20 min = 1 mi

$$\frac{20}{10} = 2 \text{ min per block}$$

8 blocks = ? min   8 × 2 = 16 min

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3 **Evaluate** **Does the result make sense?**

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Matthew has been collecting quarters in a jar. He has 176 quarters. What is the value of the coins in his jar?
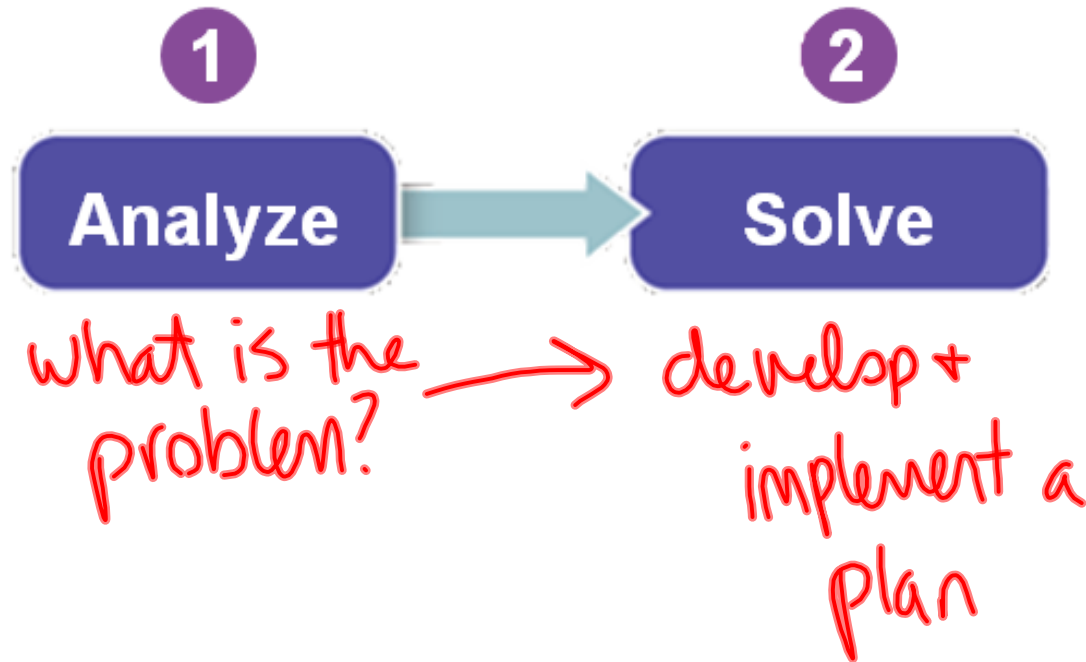
$$4_q \rightarrow 1_d$$

$$176 \times .25 = 44 \qquad 1_q \rightarrow .25$$

$$176 \div 4 = 44$$

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Solving Nonnumeric Problems

1 Analyze → **2** Solve

what is the → develop +
problem?　　implement a
　　　　　　　plan

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Scheduling Classes

Manny needs to schedule his classes for next year. The school day is divided into seven periods, and he must take Algebra II, Art, Chemistry, English, History, and Physical Education. Using the information from the course catalog, find a way for Manny to schedule all his classes.

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- ✓ Algebra II is offered during either 1st or 2nd period.
- ✓ Art is offered during 2nd period only.
- ✓ Chemistry is offered during either 3rd or 6th period.
- ✓ English is offered during either 6th or 7th period.
- ✓ History is offered during either 4th or 7th period.
- ✓ Physical Education is offered during 4th period only.
- ✓ Lunch is scheduled for 5th period.

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1 **Analyze** **Identify the relevant concepts.**

- Manny must take lunch during 5th period.

- Art is only available during 2nd period.

- Physical Education is only available during 4th period.

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2 **Solve** **Apply the concepts to this problem.**
Place lunch, Art, and Physical Education
into Manny's schedule.

Manny's Schedule	
1st period	Alg
2nd period	Art
3rd period	Chem
4th period	P.E.
5th period	Lunch
6th period	Eng
7th period	Hist

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2 Solve Apply the concepts to this problem. Place lunch, Art, and Physical Education into Manny's schedule.

Manny's Schedule	
1st period	
2nd period	Art
3rd period	
4th period	P.E.
5th period	Lunch
6th period	
7th period	

Fill the remainder of the classes into Manny's schedule.

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Effective problem solving always involves developing a plan and then implementing that plan.

The steps for solving a numeric word problem are analyze, calculate, and evaluate.

The steps for solving a nonnumeric problem are analyze and solve.

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Aug 26-8:41 AM

Attachments

Flint calling Sam Sparks.mp4