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Meeting Teens' Needs through Routines

MCTM Coaching Conference

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Poll The Class

Welcome! How many candies are in the jar?

Write your initials and estimate on a data dot.

Come up and place your data dot on the number line.

Check Out Our Data Dots!

What do you **notice**? What do you **wonder**?

Welcome!

MCTM Coaching Conference

Greta Richard

HCPSS Secondary Math Coaches

Mike McMillion

Session Outcomes

- Examine characteristic traits of teenagers and strengthen our understanding of what experiences children are going through in our secondary schools.
- Review and engage in the IM instructional routines and Math Language Routines.
- Consider ways in which we can support our teachers as they plan for teens in their math classrooms.

The Teenage Experience

01 Emotional

02 Physiological

03 Social

04 Educational

Emotional

Risk Takers!

Passionate People!

Wide-Ranging

Physiological

Brain Development

Changes!

Finding Identity

Social

Lasting Impact

Street Cred!

Problem-solvers

Super Learners

Educational

Best Practices

What are Instructional Routines?

- Instructional routines are specific and repeatable designs for learning that **support both the teacher and students** in the classroom... enabling all students to engage more fully in learning opportunities while building crucial mathematical thinking habits. (Kelemanik, Lucenta, & Creighton, 2016).
- A well-designed instructional routine **opens up conversations and thinking** about mathematics that might not happen by themselves (McCallum & Nowak, 2018).

Why Routines?

- Routines are an **essential** part of mathematics classrooms because they give **structure** to time and interactions, letting students know what to expect in terms of **participation**, supporting classroom **management** and **organization**, and promoting **productive** classroom relationships for teaching and learning.

IM Middle School Instructional Routines

- Algebra Talk
- 5 Practices
- Group Presentations
- Notice & Wonder
- Number Talk
- Poll the Class
- Take Turns
- Think, Pair, Share
- True or False
- Which One Doesn’t Belong

IM High School Instructional Routines

- Analyze It
- 5 Practices
- Aspects of Mathematical Modeling
- Card Sort
- Extend It
- Fit It
- Graph It
- Math Talk
- Notice & Wonder
- Poll the Class
- Take Turns
- Think, Pair, Share
- Which One Doesn’t Belong

Poll the Class - The Routine

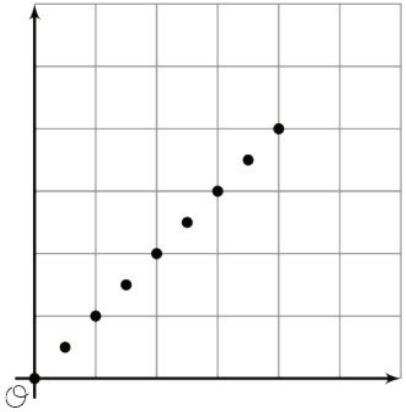
1. The teacher provides a prompt to make an estimate, share data, or register an initial response.
2. Every student in class reports a response to the prompt.
3. Teachers ensure data is collected and displayed seamlessly.
4. This routine launches an activity or kicks off a discussion, where students are invested or interested in engaging.

Notice & Wonder - The Routine

1. Students are shown some media or a mathematical representation. The prompt to students is “What do you notice? What do you wonder?”
2. Students are given a few minutes to think of things they notice and wonder and share them with a partner.
3. Then, the teacher asks several students to share things they noticed and wondered and records them for all to see.
4. The teacher can steer the conversation to wondering about something mathematical that the class is about to focus on.

Which One Doesn't Belong? (6.6.18)

A



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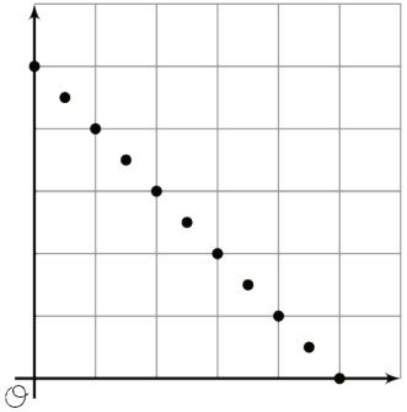

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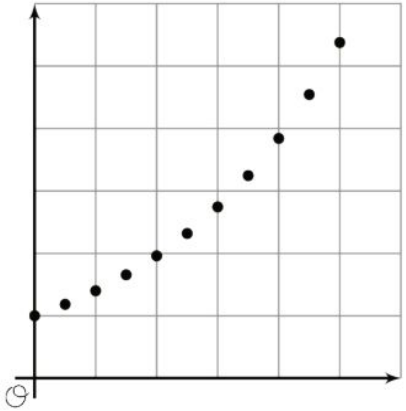

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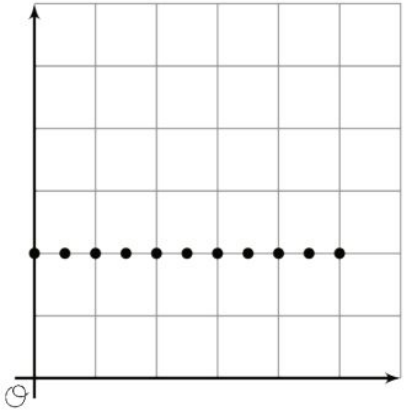


WODB - The Routine

1. Students are presented with four figures, diagrams, graphs, or expressions with the prompt “Which one doesn’t belong?”
2. Typically, each of the four options “doesn’t belong” for a different reason, and the similarities and differences are mathematically significant.
3. Students are prompted to explain their rationale for deciding that one option doesn’t belong and given opportunities to make their rationale more precise.

Math Language Routines

1. Stronger & Clearer Each Time
2. Collect & Display
3. Clarify, Critique, Correct
4. Information Gap Cards
5. Co-Craft Questions
6. Three Reads
7. Compare & Connect
8. Discussion Supports

Three Reads - The Why

1. To ensure that students know what they are being asked to do, and to create an opportunity for students to reflect on the ways mathematical questions are presented.
2. This routine supports reading comprehension of problems and meta-awareness of mathematical language.

The First Read

Understand the Story Context

In the first read, the goal is only to understand the context of the problem.

The Second Read

Identify Quantities

The second time we read the problem together, students focus exclusively on making sense of the quantities in context.

The Third Read

Reveal the Questions and Plan Solution Strategies

Read 3 is where we read the context one last time, and then reveal the actual questions students will investigate.

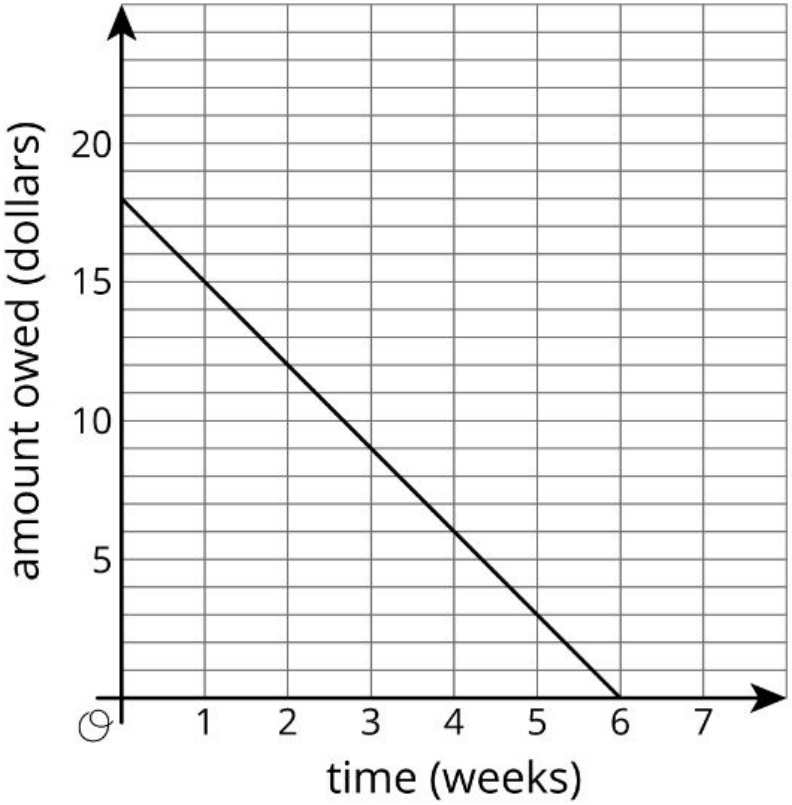
After the shared reading, ask “What are some ways we might solve this?”

The goal is for students to do some high-level planning and strategizing before they jump into the nitty gritty of computation.

Three Reads

The Payback Plan (8.3.9)

Elena borrowed some money from her brother. She pays him back by giving him the same amount every week. The graph shows how much she owes after each week.



Elena borrowed some money from her brother. She pays him back by giving him the same amount every week. The graph shows how much she owes after each week.

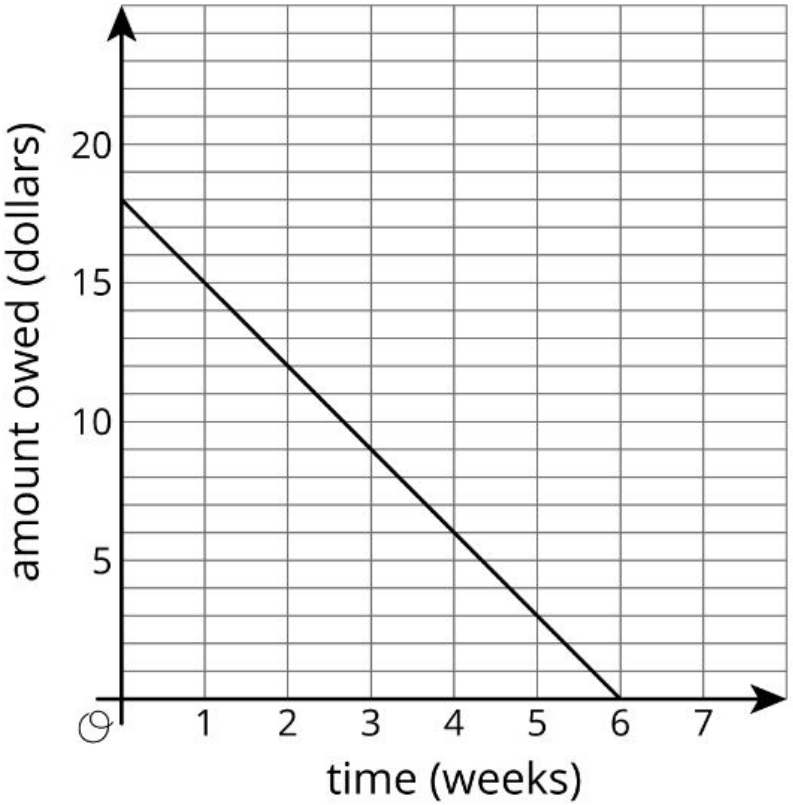
1. What is the slope of the line?

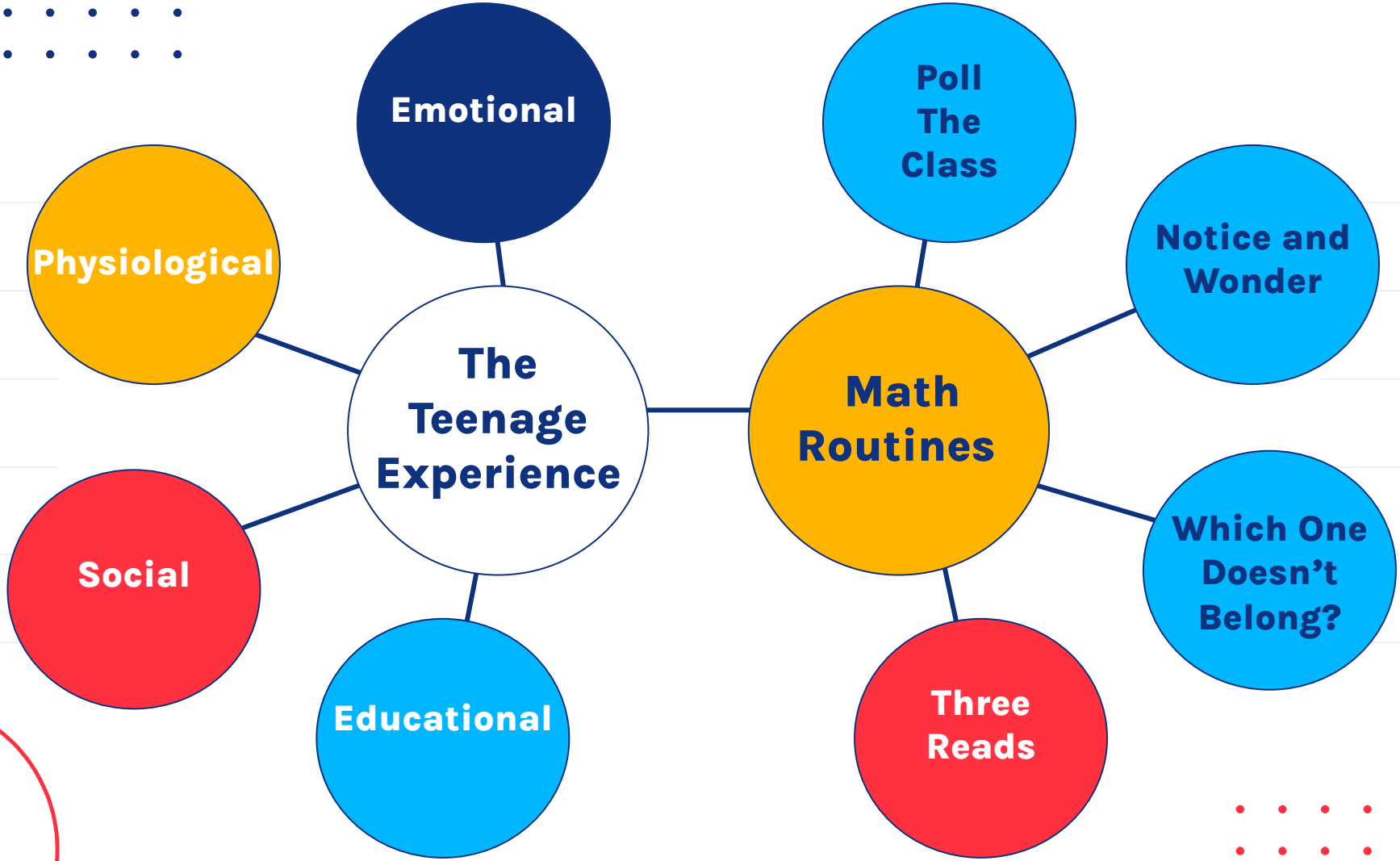
2. Explain how you know whether the slope is positive or negative.

3. What does the slope represent in this situation?

4. How much did Elena borrow?

5. How much time will it take for Elena to pay back all the money she borrowed?

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Thank you!