ASSESSMENT DECISIONS/ QUESTION SEQUENCING

MARIAN SMALL

HOW DID IT GO?

- Share with us how you analyzed an expectation to decide what ideas would be coming up.
- How did it affect your activity and consolidation?

FOCUS TODAY

- What kinds of follow-up questions do you ask?
- What do you focus on in assessment?

QUESTIONS I MIGHT ASK

- Does this equation involve multiplication: $2n = 10$?
- Does this one: $2n = n + n$?
- How are those two equations different?

QUESTIONS I MIGHT ASK

- Why is $5n + 4 = 24$ ONLY true when $n = 4$?

ASSESSMENT

- Observe:
- Student comfort with letters
- Differentiate between situations where a variable represents an unknown vs a varying quantity

ASSESSMENT

- In which equation can n have only one value?
- $3 \times n = 2 \times n + n$
- $40 - 3 \times n = s$
- $n \div 8 = 100$
- $5 - n = 10 - n - 5$

ASSESSMENT

- What does this equation mean? $3 \times n + 2 = 20$
- $5 \times n = 4 \times n + n$?

ASSESSMENT

- Write two different equations to describe this:
- Your sister has three times as many books as you do.

ASSESSMENT

- Describe two different situations that 4 x m + 20 = 80 might represent.

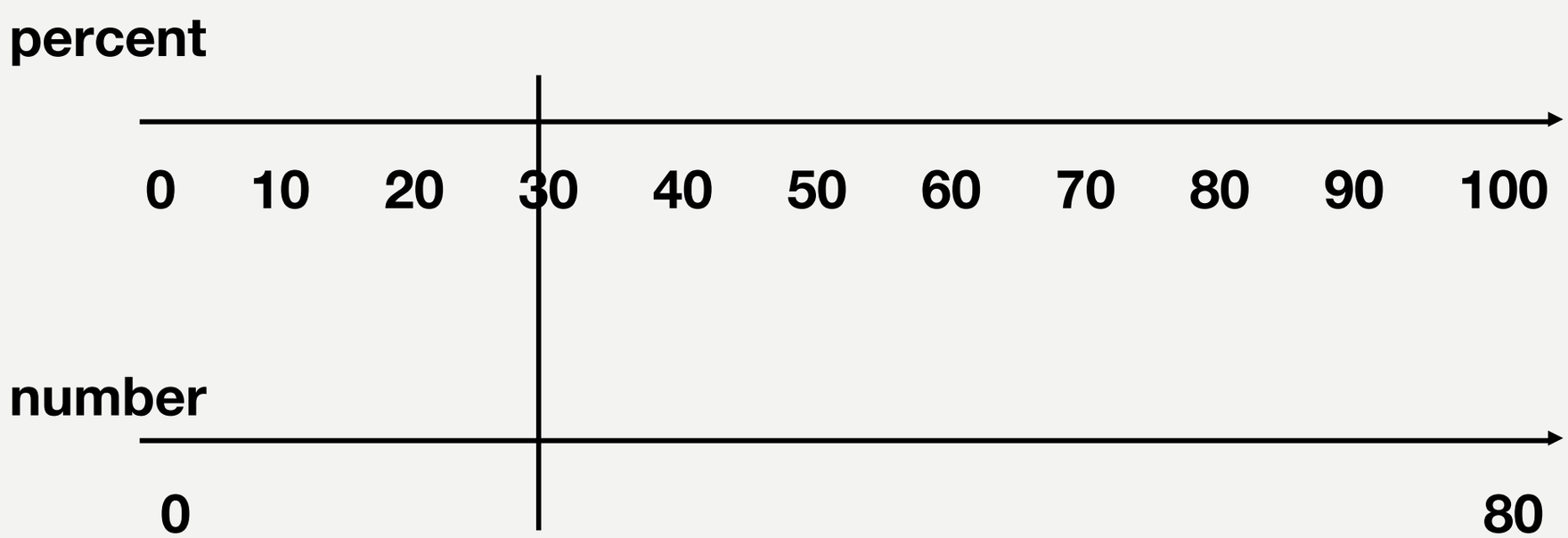
ASSESSMENT

- What is different about what m represents in each of these equations?
- $m + 5 = 10$
- $m + m + 3 = 2 \times m + 3$
- $2 \times m = n$

GRADE 7 BACKGROUND

- Percents using double number lines
- Suppose you want to know 30% of 80.

GRADE 7 BACKGROUND



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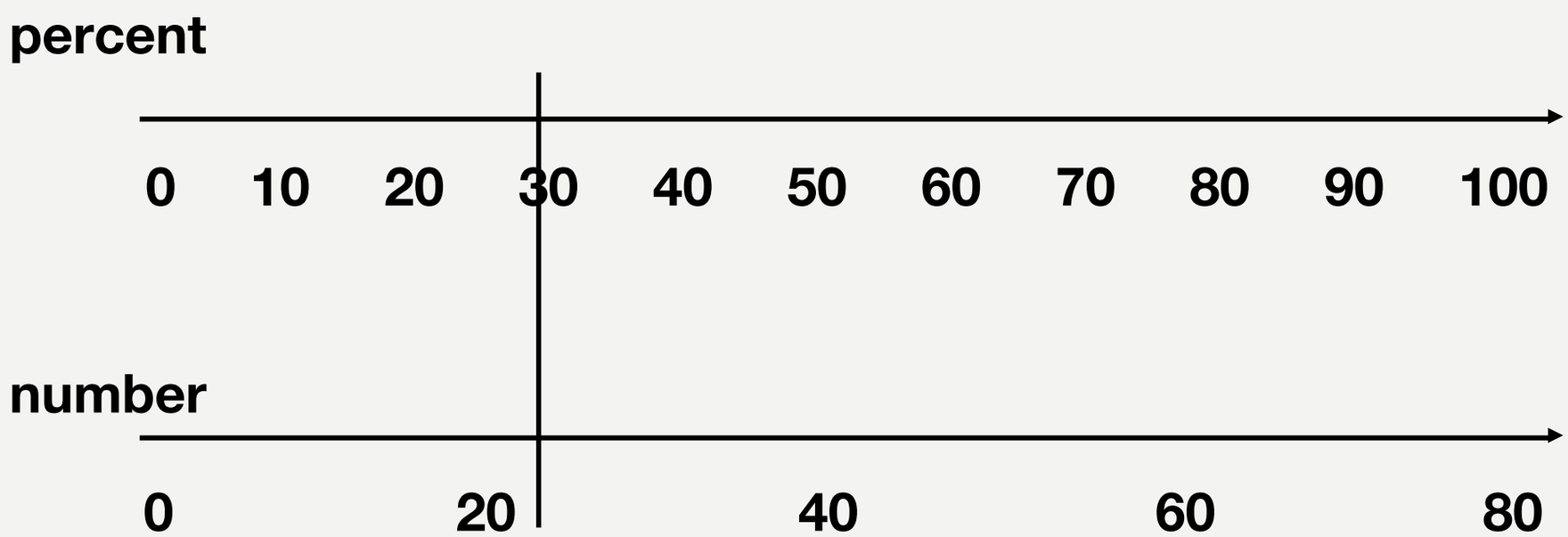

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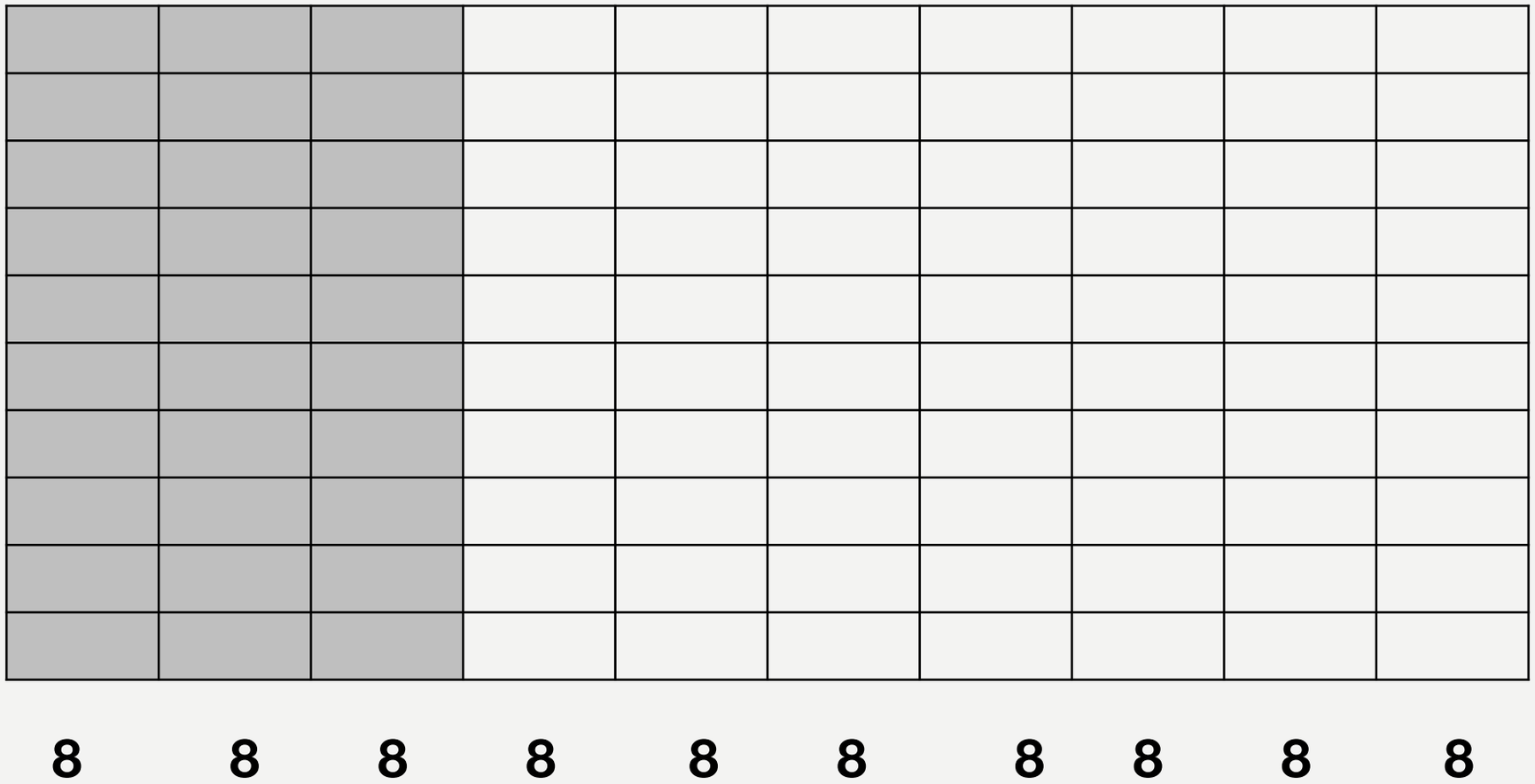


GRADE 7

- You bought a sweater on sale.
- You paid $45.
- Figure out the original price if the percent off is what is indicated. Use a visual to make sense of your answer.

GRADE 7

- $45 was the price when it was 50% off.
- $45 was the price when it was 25% off.

GRADE 7

- $45 was the price when it was 10% off.
- $45 was the price when it was 20% off.

QUESTIONS I MIGHT ASK

- If the reduced price was $45 when it was 20% off, was the original price a lot more than $45 or just a little? Why?

QUESTIONS I MIGHT ASK

- If the reduced price was $45 when it was 10% off, was the original price more or less than if it had been a 20% off sale?

QUESTIONS I MIGHT ASK

- If you know the percentage off, how do you figure out the percentage you paid?
- How can using number lines or grids help you estimate or figure out the value of 100%?

QUESTIONS I MIGHT ASK

- How did thinking about percents as fractions help you figure out answers?

ASSESSMENT

- Observe if students choose a variety of strategies, both visual and numeric, to work with percents

ASSESSMENT

- Calculate a percent of an amount.
- Calculate a whole given a percent.

ASSESSMENT

- Why might it be useful to think of 80% as 4/5 to figure out 80% of 55?
- Estimate 32% of 157.

ASSESSMENT

- Estimate the number if 57% of it is 48.
- Suppose you know that 24% of a number is 144. What is 6% of it?

ASSESSMENT

- Why might you divide 60 by 0.24 to figure out the number that 60 is 24% of?

GRADE 8

- Let’s use the fraction towers to figure out these ideas.

GRADE 8

- What is
- 1/5 ÷ 1/10?
- ¼ ÷ 1/12?
- ½ ÷ 1/3?

GRADE 8

- What is
- 9/10 ÷ 3/10?
- 6/8 ÷ 2/8?
- 5/10 ÷2/10?

GRADE 8

- One fraction strip fits into another 2 ½ times.
- What could the two strips be?
- What division question are you solving?

QUESTIONS I MIGHT ASK

- How do you know that the fraction that fits in is less than half of the bigger fraction?

QUESTIONS I MIGHT ASK

- How do you know that the greater fraction is more than double the lesser one?

QUESTIONS I MIGHT ASK

- What fraction does 1/3 fit into 2 ½ times?
- How about ¼?
- How about 1/10?

QUESTIONS I MIGHT ASK

- Why might you think it's easier to figure out $4/10 \div 1/10$ than $4/10 \div 1/3$?

QUESTIONS I MIGHT ASK

- Why might someone think that 4/10 ÷ 3/10 = 1 1/10? Is it?

QUESTIONS I MIGHT ASK

- Why is the result of a/[] ÷ b/[] = a/b?

GRADE 9

- There is a right triangle on the coordinate plane.
- What three lines might the sides lie on?

QUESTIONS I MIGHT ASK

- Could two of the lines have negative slopes?
- Could two of the lines have positive slopes?
- Could one line have a zero slope?

QUESTIONS I MIGHT ASK

- Could one of the lines have slope -3/2?
- What would the other slopes be?

QUESTIONS I MIGHT ASK

- Suppose your first two lines were $y = 0$ and $y = x$.
- What do you know about the third line?

QUESTIONS I MIGHT ASK

- Suppose your first two lines were $y = 0$ and $y = 2x$.
- What do you know about the third line?

ASSESSMENT

- What might the slopes be of two lines that form a right angle? What could they not be?

ASSESSMENT

- Observe: Do students recognize that only slopes and not intercepts matter when deciding if lines are perpendicular?

ASSESSMENT

- A line is perpendicular to $3x - 2y = 8$. What might its equation be?
- What if it's perpendicular at the point (2, -1)?

ASSESSMENT

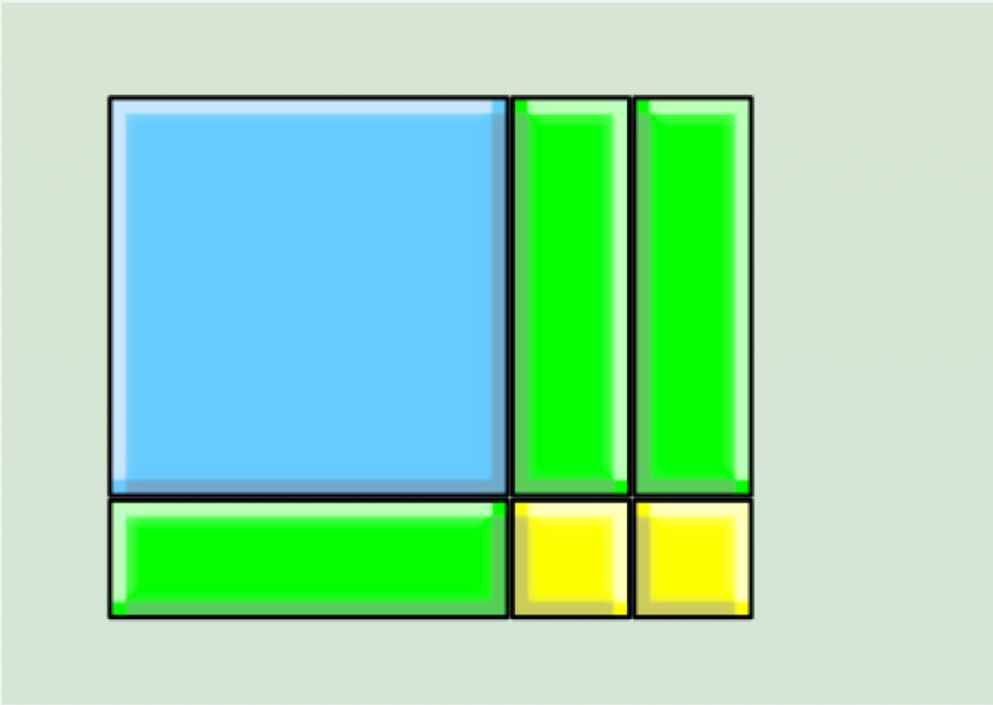
- These points form a right triangle. What might the values of m, n, and p be?

(-1,m), (5,n), (p, 15)

GRADE 10

- Let's look at using algebra tiles to factor.
- E.g. $x^2 + 3x + 2$

GRADE 10



The area is $x^2 + 3x + 2$.
The length is $x + 2$; the width is $x + 1$.

Do you notice that there are 2 rows of 3 tiles?

GRADE 10

- You use algebra tiles to factor a quadratic.
- You end up with 3 rows of 5 tiles.
- What might the quadratic and factors have been?

I MIGHT ASK

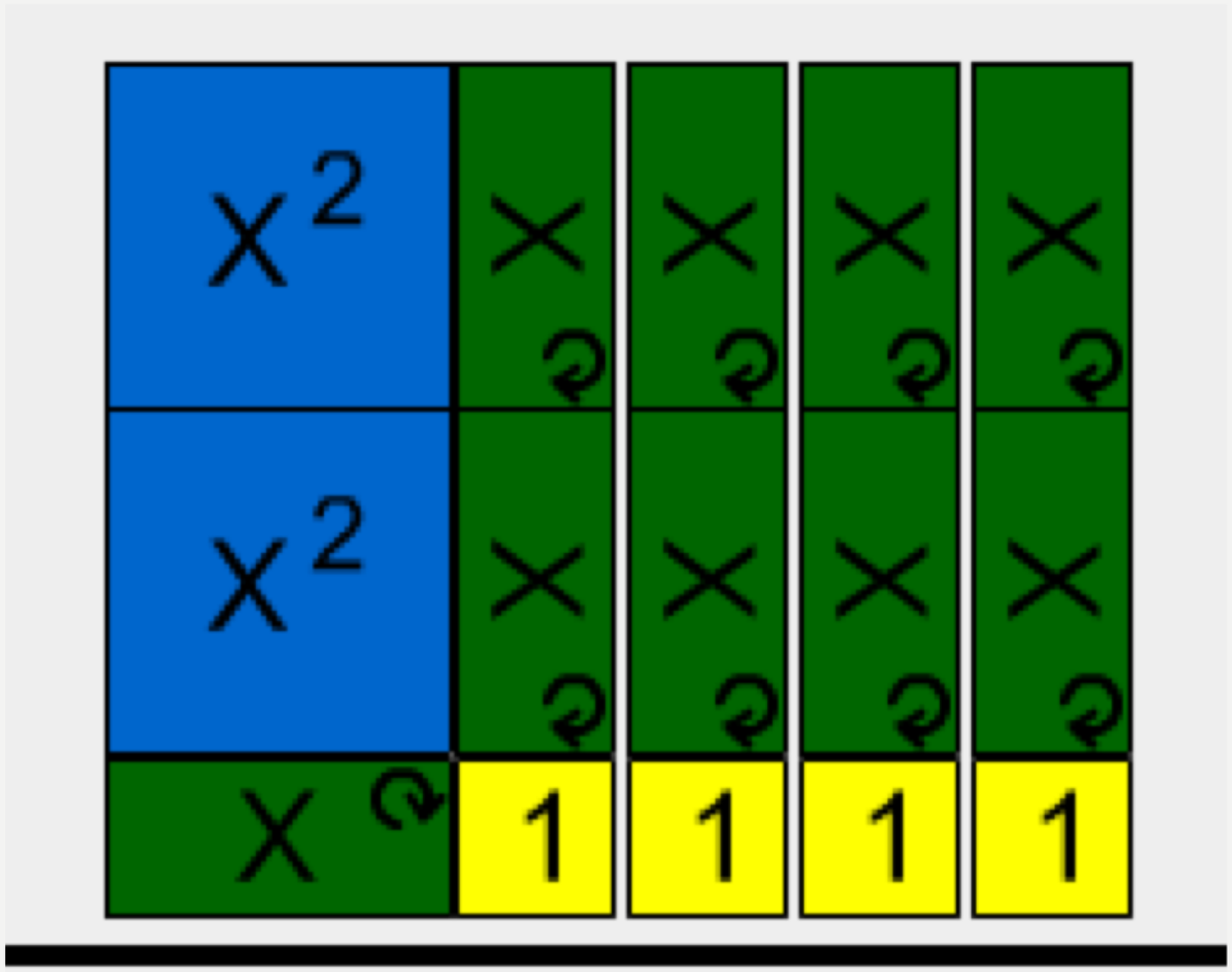
- How do you know that it could not have been $(2x)(4x)$?
- Could it have been $(2x+1)(4x)$?

I MIGHT ASK

- Could the quadratic have been $x^2 + bx + c$?

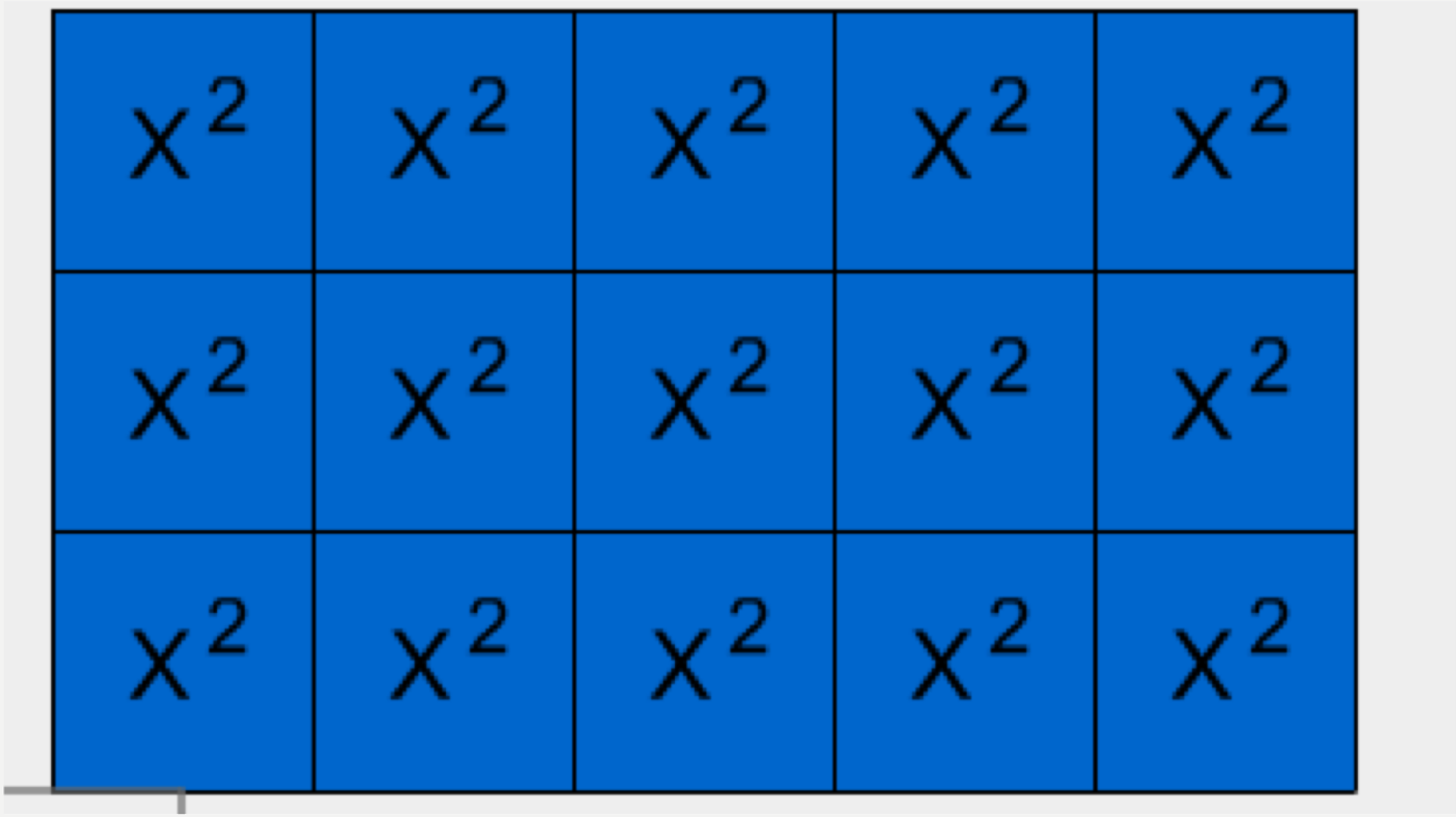
MAYBE

- (2x + 1) (x + 4)



MAYBE

- (3x)(5x)



I MIGHT ASK

- Once you know that $(2x+1)(4x+1)$ works, what else has to work?

ASSESSMENT

- Observe:
- Do students recognize how many terms should be in the factors by looking at the quadratic?

ASSESSMENT

- Observe:
- Do students make good first "guesses" about what factors to try?

ASSESSMENT

- List three quadratics (2x +3) is a factor of.

ASSESSMENT

- Factor:
- $3x^2-10x + 3$
- $10x^2 – 14x$
- $2x^2 – 8x + 8$

ASSESSMENT

- Could (2x +3) be a factor of $5x^2 - 2x - 1$? Why or why not?

ASSESSMENT

- Why is arranging tiles into a rectangle a useful way to factor it?
- How can you tell how many rows and columns there were by looking at the factors?

YOUR TURN

- Think of a topic you have recently taught.
- What might be some good questions to ask to get at ideas?
- What should you observe?

BIG MESSAGES

- We can ask questions that move students without telling them what to do.

BIG MESSAGES

- Assessment should involve observation, should involve skills and should involve concepts.

ANY QUESTIONS?

- Are there any questions you wish to raise?

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