NAME _____ DATE _____ PERIOD _____

Score ____ / ____

Exit Ticket: 3-2-1 on the Pythagorean Theorem

REFLECTING ON RIGHT TRIANGLES AND THE RELATIONSHIP OF SIDE LENGTHS

WHY THIS MATTERS Mastering the Pythagorean Theorem allows you to calculate exact straight-line distances in two-dimensional space. This mathematical tool is essential for architects planning structures, mapmakers designing navigation routes, and game developers rendering realistic 3D graphics.

DIRECTIONS Before you leave, complete this 3-2-1 exit ticket to show what you have discovered about right triangles today. Answer each prompt carefully using mathematical terms like hypotenuse and legs.

3 CORE CONCEPTS

List three key facts you learned about the relationship between the legs and the hypotenuse of a right triangle. Think about how the areas of the squares built on each side of the triangle relate to each other.

2 PRACTICAL APPLICATIONS

Describe two real-world scenarios where you can apply the formula $a^2 + b^2 = c^2$ to find a missing distance. Consider everyday situations involving diagonal paths, ladders, or screen dimensions.

1 REMAINING QUESTION

Write down one question or point of confusion you still have about solving for a missing side length. Identify any step in the calculation process or triangle identification that still feels tricky.

CONFIDENCE

- [ ] Not yet
- [ ] Getting there
- [ ] Confident
- [ ] I could teach it

ONE MORE THING

One question I still have about today's lesson:

Exit Ticket: 3-2-1 — Facilitator Guide

GRADES 6-8 · ASSESSMENT · EXIT TICKET

A reflective 3-2-1 exit ticket designed to assess students' understanding of the relationship between the legs and hypotenuse of a right triangle and its real-world applications.

QUICK START

> ***WHY THIS MATTERS*** *· Learning target: Students will summarize the geometric relationship of the Pythagorean Theorem and identify real-world scenarios where it can be applied to find missing distances.*

TIME	GROUPING	MATERIALS
10-15 min	Individual	Completed student exit ticket worksheets · Pencils

KEY VOCABULARY hypotenuse · legs · right triangle · area · square

GUIDING QUESTIONS

How does the area of the squares built on the legs relate to the area of the square built on the hypotenuse?

What real-world objects or paths form the legs and hypotenuse in your scenarios?

FACILITATION SEQUENCE

1 LAUNCH · 2 MIN

Students listen to the directions, review the vocabulary terms (hypotenuse, legs), and prepare to write their reflections individually.

Watch for: Watch for students who may need a quick reminder of where the legs and hypotenuse are positioned on a right triangle.

> ***WHY THIS MATTERS*** *· A useful prompt here is: "Recall our work with the squares built on the sides of a right triangle. What did we notice about their areas?"*

ANSWER KEY & HOW TO APPROACH

FOR THE TEACHER

This activity does not have single correct answers — evaluate for completeness, reasoning, and effort, and note the qualities of a strong response here.

LIKELY STUDENT RESPONSES, MISCONCEPTIONS, AND HELPFUL TEACHER MOVES

Anticipate these — and the response that moves thinking forward.

STUDENTS MAY…	WHAT THAT MIGHT MEAN…	A HELPFUL NEXT MOVE…

Write that the relationship is simply adding the side lengths (a + b = c) instead of their squares.	The student is confusing the relationship of the side lengths themselves with the areas of the squares built on those sides.	Ask the student to draw a 3-4-5 right triangle and compare 3 + 4 to 5, then compare $3^2 + 4^2$ to 5^2.
Identify the ladder or diagonal path as a leg instead of the hypotenuse in their real-world scenarios.	The student is struggling to identify the longest side opposite the right angle in physical contexts.	Prompt the student to sketch the scenario and label where the 90-degree angle forms between the ground and the wall.

EQUITY, SEL, AND TRAUMA-INFORMED PROMPTS

EQUITY

Perspective invitations you can offer students — a second context, a missing voice, a different lived reality.

Invite students to share real-world screen dimensions or diagonal paths from their own home or community environments to validate diverse everyday contexts.

SEL

The emotional and interpersonal demands of this task — confidence, disagreement, frustration points, collaboration.

Normalize having a 'remaining question' by framing the final prompt as a valuable tool for guiding the next lesson rather than a sign of failure.

TRAUMA-INFORMED

Participation safety and predictability — a private response option, lower-stakes sharing, predictable structure.

Provide a private submission option where exit tickets are turned in directly to the teacher, ensuring students feel safe expressing confusion without peer judgment.

UDL, DIFFERENTIATION, AND LANGUAGE SUPPORTS

IF STUDENTS NEED MORE SUPPORT

Scaffolds for the same core thinking: oral rehearsal first, sketch or sort before writing, a worked example, chunked steps.

Allow students to sketch their real-world scenarios (like a ladder leaning against a wall) before writing their descriptions.

Provide a physical or digital right triangle diagram with labeled legs and hypotenuse for reference while writing.

IF STUDENTS ARE READY FOR MORE

Extensions that add complexity, not busywork: compare two approaches, justify a choice, transfer to a new context.

Challenge students to explain why the Pythagorean Theorem does not work for acute or obtuse triangles as part of their core concepts.

LANGUAGE SUPPORTS

Name the language function (explain, compare, argue, justify) with sentence frames and oral rehearsal.

Name the language function: Describe. Support students by providing sentence frames: 'One real-world scenario is a ____ where the legs are ____ and the hypotenuse is ____.'

ASSESSMENT LOOK-FORS AND NEXT STEPS

WHAT TO LOOK FOR

CRITERION	WHAT IT LOOKS LIKE HERE	POSSIBLE EVIDENCE	HELPFUL NEXT STEP

WHY THIS MATTERS · *Reteach signal: If more than half of the class struggles to describe a valid real-world scenario or confuses the hypotenuse with a leg, plan a mini-lesson modeling how to superimpose a right triangle over a diagram of a ladder leaning against a wall.*