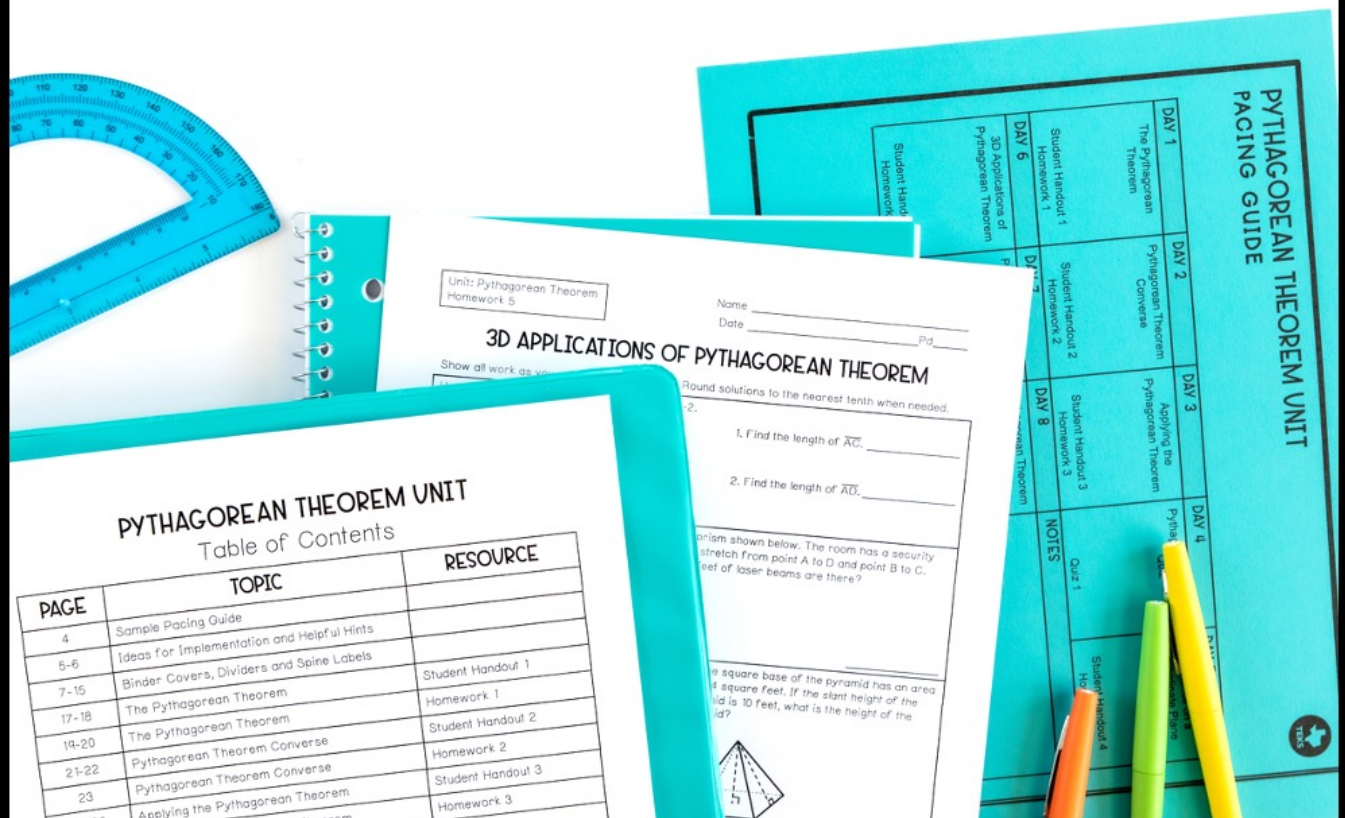


learning focus:

- ✓ use the pythagorean theorem and its converse to solve problems
- ✓ use models of the pythagorean theorem
- ✓ determine the distance between points on a coordinate plane using the pythagorean theorem

PYTHAGOREAN THEOREM UNIT 8 DAY TEKS-ALIGNED UNIT



A MANEUVERING THE MIDDLE® RESOURCE

PYTHAGOREAN THEOREM



an 8 day TEKS-aligned unit

TEKS: 8.6C, 8.7C, 8.7D

**ready-to-go, scaffolded
student materials**

PYTHAGOREAN THEOREM UNIT

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PYTHAGOREAN THEOREM



an 8 day TEKS-aligned unit
TEKS: 8.6C, 8.7C, 8.7D

student friendly + real-world
application

scaffolded
concepts

Unit: Pythagorean Theorem
Student Handout 4

Name _____
Date _____ Pd _____

DISTANCE ON A COORDINATE PLANE

Assuming each interval on the graph represents one unit, find each of the following segment lengths by counting. If not possible, explain why.

- Find the length of \overline{AB} .
- Find the length of \overline{AC} .
- Explain how a right triangle could be used to find the length of \overline{BC} .

DISTANCE ON A COORDINATE PLANE

- To find a diagonal distance, draw a right triangle where the diagonal is the hypotenuse.
- Then, use the Pythagorean theorem to find the diagonal distance.

In 1-3, use the Pythagorean theorem to find the distance between the points. Round answers to the nearest tenth.

-
-

4. Triangle EFG is shown on the grid. Find the perimeter of the triangle.

Unit: Pythagorean Theorem
Homework 4

Name _____
Date _____ Pd _____

DISTANCE ON THE COORDINATE PLANE

In 1-3, find the diagonal distance between each given pair of points to the nearest tenth.

-
-
-

Use the trapezoid shown to mark each statement below as true or false. If false, rewrite the statement correctly in the space below the statement.

4. The length of \overline{AB} can be found using $3^2 + b^2 = 4^2$.

5. The perimeter of the trapezoid shown is 22 units.

The graph below represents a map where each unit is 0.75 miles. Use the map to answer 6-8.

- How many miles is the most direct path from Jim's house to the mall?
- Jim's car has 25 miles until it runs out of gas. Would Jim be able to make it from his house to the grocery store and back without stopping for gas? Explain.
- Jim hopes a park will be built within 5 miles of his house. If a park is built at the coordinates (3, 7), does that meet Jim's criteria? Explain.

Summarize today's lesson:

interactive
practice

PYTHAGOREAN THEOREM



an 8 day TEKS-aligned unit

TEKS: 8.6C, 8.7C, 8.7D

streamline your planning
process with unit overviews

PYTHAGOREAN THEOREM OVERVIEW



READINESS STANDARDS

8.7C Use the Pythagorean theorem and its converse to solve problems.

SUPPORTING STANDARDS

8.6C Use models and diagrams to explain the Pythagorean theorem.

8.7D Determine the distance between two points on a coordinate plane using the Pythagorean theorem.



key vocabulary



vertical alignment



sample
pacing
calendar

BIG IDEAS

- The side lengths of all right triangles with shorter sides equals the square of the hypotenuse.
- The Pythagorean theorem helps determine if a triangle is a right triangle.

ESSENTIAL QUESTIONS

- What are two different ways to find the area of a right triangle?
- How are the side lengths of a right triangle related?
- How can you visualize or draw a right triangle?
- How can the Pythagorean theorem be used to solve problems?

PYTHAGOREAN THEOREM UNIT PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
The Pythagorean Theorem	Pythagorean Theorem Converse	Applying the Pythagorean Theorem	Pythagorean Theorem Quiz	Distance on a Coordinate Plane
Student Handout 1 Homework 1	Student Handout 2 Homework 2			
DAY 6	DAY 7			
3D Applications of Pythagorean Theorem	Pythagorean Theorem Study Guide			
Student Handout 5 Homework 5	Review			

PYTHAGOREAN THEOREM UNIT OVERVIEW



TOPIC	TEACHING TIPS
Proving the Pythagorean Theorem	Visit http://illuminations.nctm.org and search "Pythagorean Review" for a visual proof of the Pythagorean theorem. The tool allows you to change the side lengths of the triangles and observe how it changes the area of the connected squares. Great for visualizing the theorem.
Pythagorean Theorem	Visit http://science360.gov and search "Pythagorean Theorem" to find a video relating the Pythagorean theorem to football.
Pythagorean Theorem Converse	Students will be tempted to argue that a triangle is a right triangle simply because it "looks" like it has a 90° angle. I try to remind them that an angle could be 89° or 91° and it would look close to a right angle, so it's important to always use the converse to be sure.
Distance on a Coordinate Plane	Visit http://kera.pbslearningmedia.org and search "Calculating Distance Using the Pythagorean Theorem" for a tool that demonstrates how the theorem is used to find distances on a coordinate plane. This would be great at the beginning of the lesson. On the same site, search "Using the Pythagorean Theorem on the Cartesian Graph" for an activity where students place animals and find their distances using the Pythagorean theorem. It allows students to check answers as they go.
3D Applications of the Pythagorean Theorem	Consider bringing in a rectangular prism box (a shoebox would work well) and allow students to measure the length and width of the base. Then use the Pythagorean theorem to calculate the diagonal of a box. Lastly, use a string or tape measure to directly measure the diagonal of the box, thus showing the students that the theorem works.

teaching
ideas



PYTHAGOREAN THEOREM



an 8 day TEKS-aligned unit

TEKS: 8.6C, 8.7C, 8.7D

unit study guide + assessments



quizzes



editable unit test

Unit: Pythagorean Theorem
Quiz 1

Name _____
Date _____ Pd _____


QUIZ: PYTHAGOREAN THEOREM

Show all work as you answer each question. Round solutions to the nearest tenth when necessary.



1. A rectangular parking lot has a length of 84 feet and a width of 56 feet. Which of the following could be used to find the diagonal distance across the parking lot?

A. $84^2 - 56^2 = c^2$
B. $(84 + 56)^2 = c^2$

2. Find the missing side length of the right triangle below.



4. Which of the following shows the sides of a right triangle?

A.  B. 

5. Jack has a 35-foot ladder leaning against his house, 12 feet away from his house, how many feet does the ladder reach the house?

Unit: Pythagorean Theorem
Review

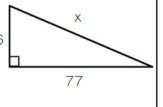
Name _____
Date _____ Pd _____

PYTHAGOREAN THEOREM STUDY GUIDE

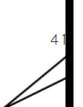
Solve each of the problems below, and round all solutions to the nearest tenth when necessary. Be sure to ask questions if you need more help with a topic.

I CAN USE THE PYTHAGOREAN THEOREM TO FIND UNKNOWN SIDE LENGTHS IN RIGHT TRIANGLES. 8.7C

1. Find x, the missing side length in the right triangle.



2. Find x, the missing side length in the right triangle.



5. The legs of an isosceles right triangle measure 10 inches. Find the length of the hypotenuse.

I CAN APPLY THE PYTHAGOREAN THEOREM TO REAL-WORLD PROBLEMS. 8.7D

7. Peter is trying to get his cat out of his backyard. The cat is 12 feet above ground, and Peter sets the base of the ladder 16 feet away from the tree to avoid some bushes. How long does the ladder need to be to reach the cat?

EIGHTH GRADE CURRICULUM

PYTHAGOREAN THEOREM

UNIT FIVE: ANSWER KEY

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answer keys
included

