In-Class Game

The Pythagorean Theorem Game (Lesson 3-4)

Get Ready!

Separate the class into groups of four.

- The Pythagorean Theorem Game master, p. 8
- The Pythagorean Theorem Game Board master, p. 9
- The Pythagorean Theorem Game Cards masters, pp. 10–11
- index cards 
- scissors 
- tape  or glue 
- 2 number cubes per group 
- 4 different colored counters per group 

Get Set!

Make a copy of The Pythagorean Theorem Game master on page 8 for each student in the class. Photocopy The Pythagorean Theorem Game Board master on page 9 onto card stock for each group. Make a copy of The Pythagorean Theorem Game Cards masters on pages 10 and 11 for each group. Have students cut out the game cards, tape or glue them to the index cards, and draw a "?" on the reverse side.

Go!

- A player rolls both number cubes and substitutes the numbers into the Pythagorean Theorem for the lengths of the legs. Then the player moves around the board a distance that is closest to the value of c. For example, if a player rolls a 1 and a 2, he or she would determine how many spaces to move as follows.

  $1^2 + 2^2 = c^2$

  $1 + 4 = c^2$

  $5 = c^2$

  $\sqrt{5} \approx 2.236$ or 2 Always round to the nearest whole number.
- When a player lands on a space with a question mark, a question card is read to the player whose turn it is. If the player answers correctly, he or she can roll one number cube and advance that number of spaces. If the player answers incorrectly, the turn moves to the next player.
- To finish the game, the players must answer a question card correctly. If answered incorrectly, the player must go back to the space from which he or she started that turn. The first player around the board wins.

CHAPTER 3

Name_____ Date_____

In-Class Game

The Pythagorean Theorem Game (Lesson 3-4)

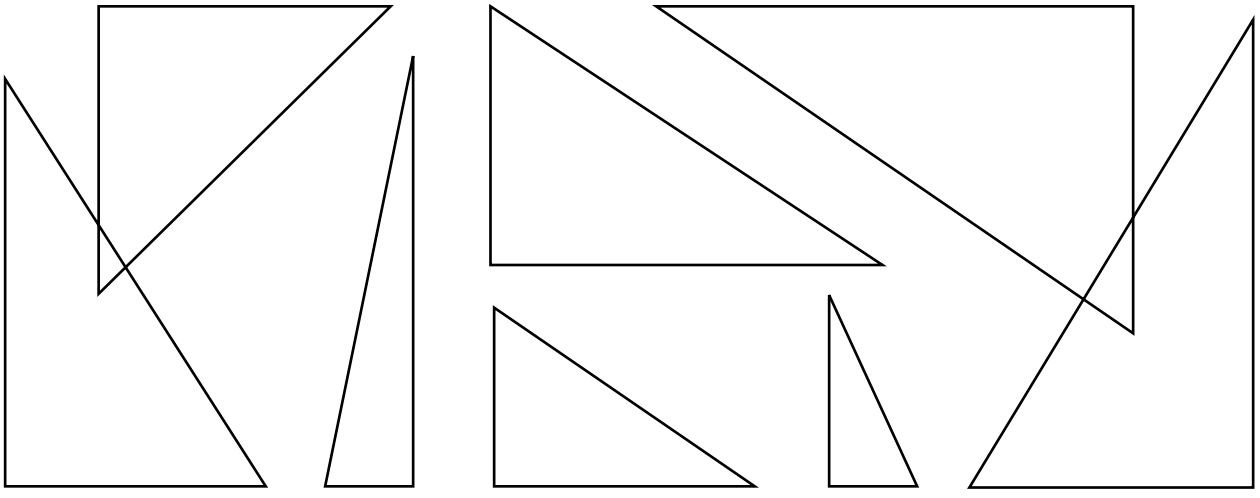
Work in groups of four.

- A player rolls both number cubes and substitutes the numbers on the number cubes into the Pythagorean Theorem for the lengths of the legs to find the value of the length of the hypotenuse. Then the player moves around the board a distance that is closest to the value of *c*. For example, if a player rolls a 1 and a 2, he or she would determine how many spaces to move as follows.

$$1^2 + 2^2 = c^2$$
$$1 + 4 = c^2$$
$$5 = c^2$$
$$\sqrt{5} \approx 2.236$$

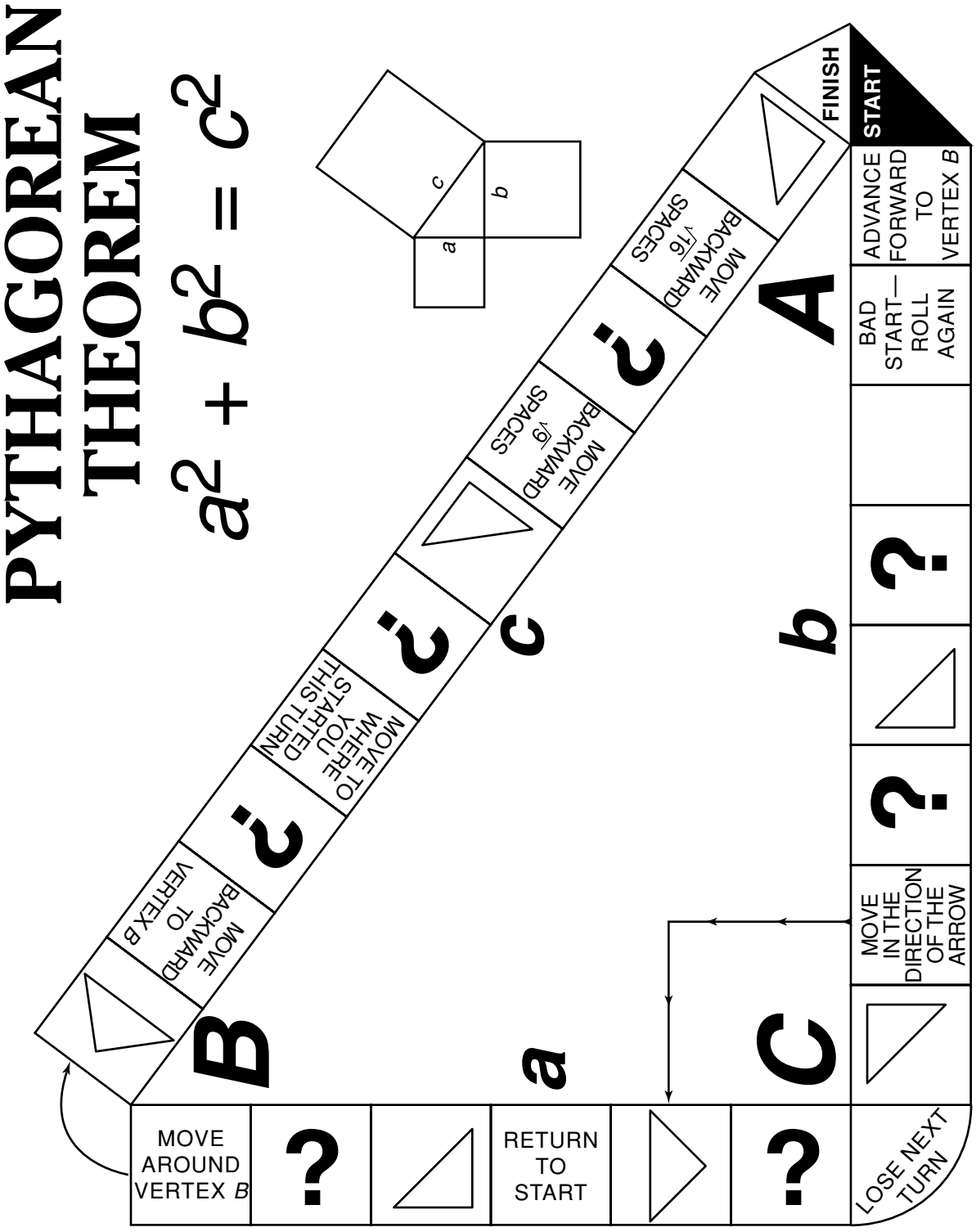
  Always round to the nearest whole number. Since 2.236 rounded to the nearest whole number is 2, the player would move 2 spaces.

- When a player lands on a space with a question mark, a question card is drawn. Another player reads the question to the player whose turn it is. If the player answers the question correctly, he or she can roll one number cube and advance the resulting number of spaces. If the player answers incorrectly, the turn moves to the next player.
- To finish the game, the players must answer a question card correctly. If the card is answered incorrectly, the player must go back to the space from which he or she started that turn. The first player around the board wins.



In-Class Game

The Pythagorean Theorem Game Board (Lesson 3-4)



In-Class Game

The Pythagorean Theorem Game Cards

(Lesson 3-4)

Find the missing member of the Pythagorean triple (7, _____, 25). **Answer:** 24	What is the length of the legs in a 45°–45° right triangle with a hypotenuse of length $\sqrt{2}$? **Answer:** 1	True or false? The Egyptians used the right triangle for land measurement. **Answer:** true
Is (8, 15, 17) a Pythagorean triple? **Answer:** yes	Find the length of the hypotenuse of a right triangle if the legs have lengths 1 and 2. **Answer:** $\sqrt{5}$	Solve the equation $a^2 + b^2 = c^2$ for c. **Answer:** $c = \sqrt{a^2 + b^2}$
What is the measure of the two nonright angles in an isosceles right triangle? **Answer:** 45° and 45°	Using $a^2 + b^2 = c^2$, find b if $c = 10$ and $a = 6$. **Answer:** $b = 8$	A number that is the square of a whole number is called a _____ square. **Answer:** perfect
Solve the equation $a^2 + b^2 = c^2$ for a. **Answer:** $a = \sqrt{c^2 - b^2}$	What is the length of the diagonal of a rectangle with sides of lengths 5 and 12? **Answer:** 13	Is it true that if $a^2 + b^2 = c^2$, then $\frac{a^2}{c^2} + \frac{b^2}{c^2} = 1$? **Answer:** yes
True or false: Pythagoras lived about 500 A.D. **Answer:** false (500 B.C.)	Have the person to your left pick two whole numbers for the measures of the legs of a right triangle. Then compute the measure of the hypotenuse.	Is (16, 20, 35) a Pythagorean triple? **Answer:** no

In-Class Game

The Pythagorean Theorem Game Cards

(Lesson 3-4)

Can an isosceles triangle be a right triangle? **Answer:** yes	Pythagoras was of what nationality? **Answer:** Greek	Explain to the rest of the players how a right triangle can be found in a rectangle, a square, and a regular triangle.
Is (7, 8, 11) a Pythagorean triple? **Answer:** no	How do you spell Pythagoras?	The Pythagorean Theorem is applicable for what type of triangle? **Answer:** a right triangle
What are the lengths of the legs of a 30°–60° right triangle with a hypotenuse of length 10? **Answer:** 5 and $5\sqrt{3}$	If you hiked 3 km west and then 4 km north, how far are you from your starting point? **Answer:** 5 km	The length of the hypotenuse of a 45°-45° right triangle is $10\sqrt{2}$. What are the lengths of the legs? **Answer:** 10
The square of the _____ of a right triangle equals the sum of the squares of the lengths of the two legs. **Answer:** hypotenuse	If the lengths of the legs of a 30°–60° right triangle are 8 and $8\sqrt{3}$, what is the length of the hypotenuse? **Answer:** 16	If the lengths of a leg and the hypotenuse of a right triangle are 5 and 10, respectively, what is the length of the other leg? **Answer:** $5\sqrt{3}$
Find the length of the diagonal of a square to the nearest hundredth if the square's area is 81 cm^2. **Answer:** 12.72 cm	If the lengths of the legs of a 45°–45° right triangle are 5, what is the length of the hypotenuse? **Answer:** $5\sqrt{2}$	If the diagonal of a square has length 8, what is the length of a side? **Answer:** $4\sqrt{2}$