

Name _____
Math 8
Six Weeks

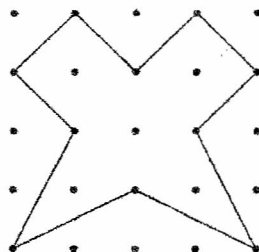
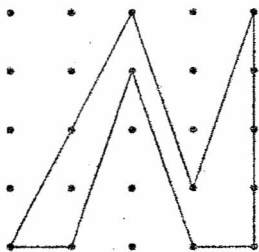
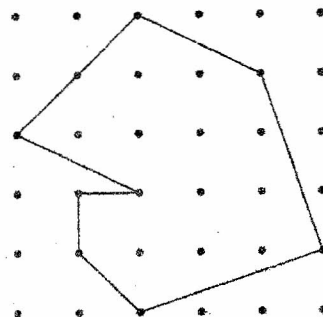
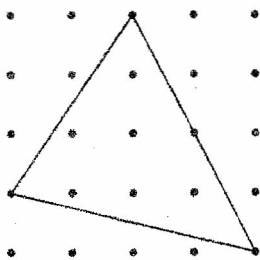
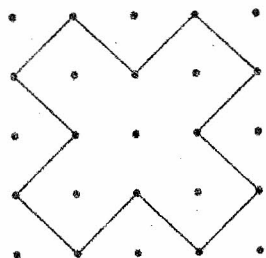
Review for Assessment : The Pythagorean Theorem

Things you need to know:

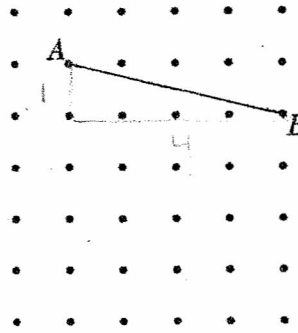
- The Pythagorean Theorem formula
- What the Pythagorean Theorem means
- All the squares for the numbers 1-25
- All the square roots that result in the numbers 1-25
- When to leave a number under the square root symbol and when it can be written as a whole number
- Vocabulary: Pythagorean theorem, leg, hypotenuse, right angle, area, length, perimeter

Practice Problems:

Find the area of the following figures. What method are you using?



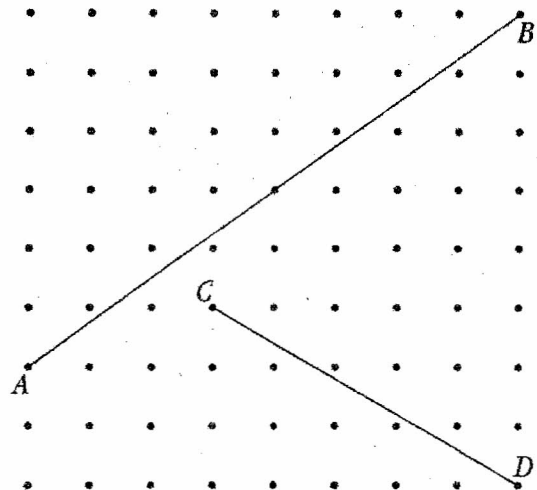
Without using a ruler, find the length of segment AB .



In 5 and 6, use the Pythagorean Theorem to find the length of the line segment. Show all work you do to find your solutions.

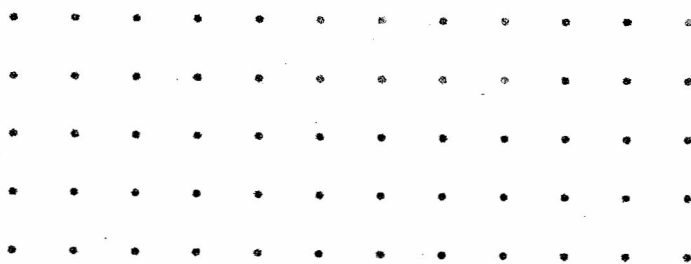
5. What is the length of segment AB ?

6. What is the length of segment CD ?

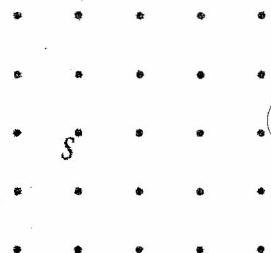


a. On the dot grid below, draw and label a line segment with length $\sqrt{2}$.

b. Draw and label a line segment with length $\sqrt{4}$.



Label the grid dot below with the letter T so that the length of ST is $\sqrt{10}$.
Label the grid dot below with the letter T so that the length of ST is $\sqrt{10}$.



LESSON

4-8 Triple Play

Three numbers connected by the Pythagorean relation are called **Pythagorean triples**.

Since $3^2 + 4^2 = 5^2$, the numbers 3-4-5 are a Pythagorean Triple.

Consider the Pythagorean triples shown in the table.

	Column A	Column B	Column C
row 1	3	4	5
row 2	5	12	13
row 3	7	24	25
row 4	9	40	41
row 5	11	60	61

1. Make an observation about the numbers in Column A.

2. How are the numbers in Column C related to those in Column B?

3. Complete this table by carrying out the indicated calculation. Two calculations are done.

	Column A	row \times A + row
row 1	3	$1 \times 3 + 1 = 4$
row 2	5	$2 \times 5 + 2 = 12$
row 3	7	
row 4	9	
row 5	11	

Compare the results to the Pythagorean triples in Columns A, B, and C of the original table.

4. In the original table, how do the squares of the numbers in Column A relate to the numbers in Columns B and C?

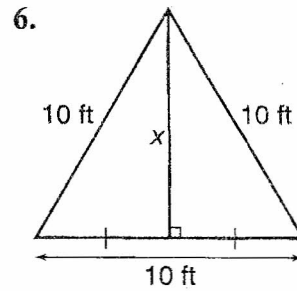
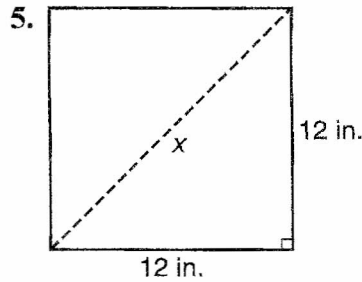
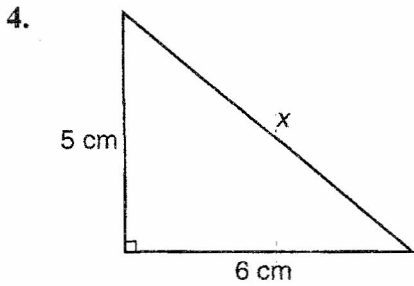
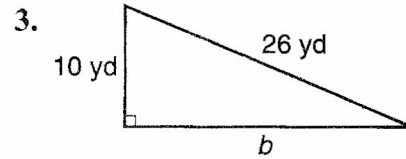
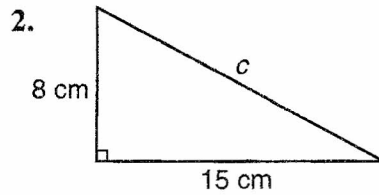
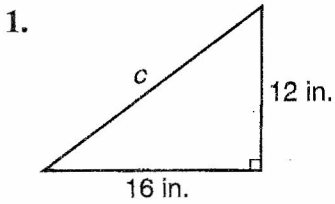
5. Using the relationships you have observed, calculate rows 6 and 10 of the table of Pythagorean triples. Verify your results by applying the Pythagorean Theorem.

	Column A	Column B	Column C	Verify $A^2 + B^2 = C^2$
row 6				
row 10				

Practice

The Pythagorean Theorem

Write an equation you could use to find the length of the missing side of each right triangle. Then find the missing length. Round to the nearest tenth.



7. $a, 24$ ft; $b, 32$ ft

8. $a, 9$ ft; $c, 16$ ft

9. $b, 5$ in.; $c, 11$ in.

10. $a, 8$ cm; $b, 12$ cm

11. $b, 15$ yd; $c, 21$ yd

12. $a, 6.3$ cm; $c, 12.4$ cm

Determine whether each triangle with sides of given lengths is a right triangle.

13. 6 cm, 8 cm, 10 cm

14. 9 mm, 12 mm, 16 mm

15. 18 ft, 80 ft, 82 ft

16. 10 mi, 24 mi, 25 mi

17. 15 cm, 36 cm, 39 cm

18. 16 yd, 30 yd, 34 yd