

Geometry

Worksheet: Converse of the Pythagorean Theorem

Name _____

Date _____ Period ____

Match the side lengths with the appropriate description.


- | | | | |
|----------|---------------|----------------|--------------------|
| <u>B</u> | 1. 26, 20, 17 | $26^2 = 676$ | a. Right Triangle |
| <u>C</u> | 2. 26, 20, 14 | $676 > 596$ | b. Acute Triangle |
| <u>A</u> | 3. 26, 10, 24 | $676 = 676$ | c. Obtuse Triangle |
| <u>D</u> | 4. 26, 10, 15 | $10 + 15 < 26$ | d. Not a Triangle |

Classify the following sides as being an acute, obtuse or right triangle

5. 2, 10, 11
 $2^2 + 10^2 = 11^2$
 $104 < 121$
OBTUSE

6. 10, 11, 14
 $10^2 + 11^2 = 14^2$
 $221 > 196$
ACUTE

7. 4, 5, 5

~~40 < 20~~

ACUTE

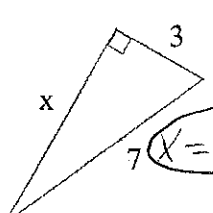
IN ORDER FOR THE
 Δ TO BE RIGHT, THE
 HYPOTENUSE HAS
 TO BE LONGER THAN
 THE ISOSCELES' LEGS

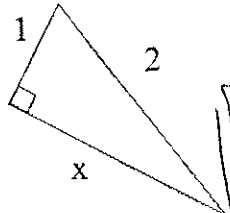
8. 17, 144, 145
 $17^2 + 144^2 = 145^2$
 $21025 = 21025$
RIGHT

9. 8, 15, 17
 $8^2 + 15^2 = 17^2$
 $289 = 289$
RIGHT

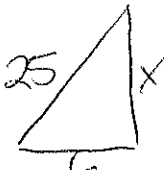
10. 10, 36, 38
 $10^2 + 36^2 = 38^2$
 $1396 < 1444$
OBTUSE

Find x. Leave your answer in two forms: 1) as a simplified radical—2) as a decimal rounded to nearest hundredth.

11. 
 $3^2 + x^2 = 7^2$
 $9 + x^2 = 49$
 $x^2 = 40$
 $x = 6.32$
 $x = 2\sqrt{10}$

12. 
 $1^2 + x^2 = 2^2$
 $1 + x^2 = 4$
 $x^2 = 3$
 $x = 1.73$
 $x = \sqrt{3}$

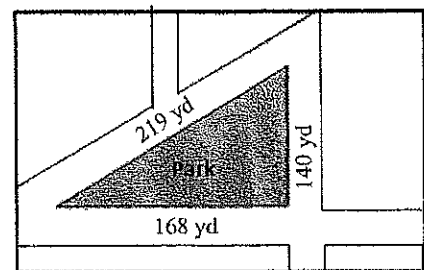
13. A 25-foot ladder is leaning against a wall. The base of the ladder is 6 feet from the wall. How far up the wall will the ladder reach?


 $6^2 + x^2 = 25^2$
 $36 + x^2 = 625$
 $x^2 = 589$

$x = 24.27$ FT
 OR
 $x = \sqrt{589}$ FT

14. The diagram shows the dimensions of a triangular city park. Does this city park have a right angle? Explain.

a $168^2 + 140^2 = 219^2$
 $47824 < 47961$



NO, THE SQUARE OF THE HYPOTENUSE IS GREATER THAN THE SUM OF THE SQUARES OF THE 2 LEGS, THEREFORE IT IS AN OBTUSE Δ