

Name: Key

Date: \_\_\_\_\_

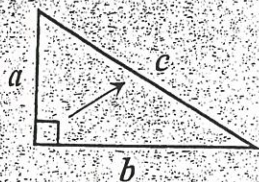
Topic: \_\_\_\_\_

Class: \_\_\_\_\_

Main Ideas/Questions

Notes/Examples

## Parts of a Right Triangle



- Sides a and b are called Legs
- Side c is called the hypotenuse

## What is the Pythagorean Theorem?

The **Pythagorean Theorem** is used to find a missing side length on a Right triangle!

Formula:

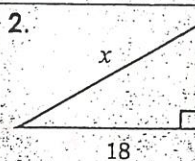
$$a^2 + b^2 = c^2$$

## Finding the Hypotenuse

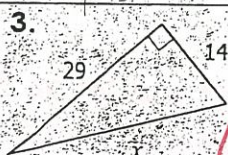
Directions: Find x. Round to the nearest tenth when necessary.



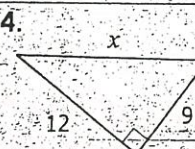
$$\begin{aligned} 5^2 + 12^2 &= x^2 \\ 25 + 144 &= x^2 \\ 169 &= x^2 \\ x &= 13 \end{aligned}$$



$$\begin{aligned} 15^2 + 18^2 &= x^2 \\ 225 + 324 &= x^2 \\ 549 &= x^2 \\ x &= 23.4 \end{aligned}$$

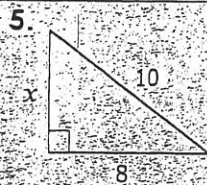


$$\begin{aligned} 14^2 + 29^2 &= x^2 \\ 196 + 841 &= x^2 \\ x^2 &= 1037 \\ x &= 32.2 \end{aligned}$$

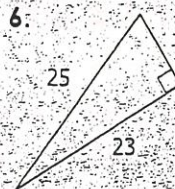


$$\begin{aligned} 9^2 + 12^2 &= x^2 \\ 81 + 144 &= x^2 \\ 225 &= x^2 \\ x &= 15 \end{aligned}$$

## Finding a Leg

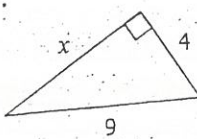


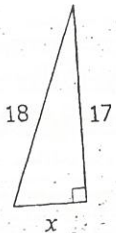
$$\begin{aligned} x^2 + 8^2 &= 10^2 \\ x^2 + 64 &= 100 \\ \underline{-64} \quad \underline{-64} \\ x^2 &= 36 \\ x &= 6 \end{aligned}$$

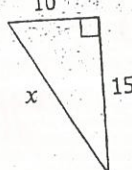


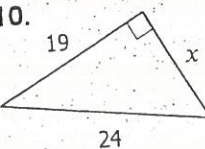
$$\begin{aligned} x^2 + 23^2 &= 25^2 \\ x^2 + 529 &= 625 \\ \underline{-529} \quad \underline{-529} \\ x^2 &= 96 \\ x &= 9.8 \end{aligned}$$

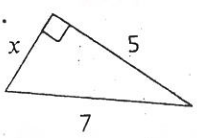
# Mixed Practice

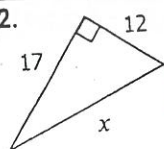
7.   $x^2 + 4^2 = 9^2$   
 $x^2 + 16 = 81$   
 $-16 \quad -16$   
 $x^2 = 65$   
 $x = 8.1$

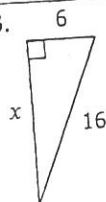
8.   $x^2 + 17^2 = 18^2$   
 $x^2 + 289 = 324$   
 $-289 \quad -289$   
 $x^2 = 35$   
 $x = 5.9$

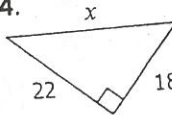
9.   $10^2 + 15^2 = x^2$   
 $100 + 225 = x^2$   
 $325 = x^2$   
 $x = 18.0$

10.   $x^2 + 19^2 = 24^2$   
 $x^2 + 361 = 576$   
 $-361 \quad -361$   
 $x^2 = 215$   
 $x = 14.7$

11.   $x^2 + 5^2 = 7^2$   
 $x^2 + 25 = 49$   
 $-25 \quad -25$   
 $x^2 = 24$   
 $x = 4.9$

12.   $12^2 + 17^2 = x^2$   
 $144 + 289 = x^2$   
 $433 = x^2$   
 $x = 20.8$

13.   $x^2 + 6^2 = 16^2$   
 $x^2 + 36 = 256$   
 $+36 \quad -36$   
 $x^2 = 220$   
 $x = 14.8$

14.   $18^2 + 22^2 = x^2$   
 $324 + 484 = x^2$   
 $808 = x^2$   
 $x = 28.4$

# Testing for a Right Triangle

Directions: Determine if the three given side lengths form a right triangle.

15. 10 cm, 15 cm, 20 cm  
 $10^2 + 15^2 = 20^2$   
 $100 + 225 = 400$   
 $325 \neq 400$   
**No**

16. 7 in, 24 in, 25 in  
 $7^2 + 24^2 = 25^2$   
 $49 + 576 = 625$   
 $625 = 625$   
**Yes**

17. 4 ft, 9 ft, 10 ft  
 $4^2 + 9^2 = 10^2$   
 $16 + 81 = 100$   
 $97 \neq 100$   
**No**

18. 14 m, 17m, 23 m  
 $14^2 + 17^2 = 23^2$   
 $196 + 289 = 529$   
 $485 \neq 529$   
**No**

19. 20 yd, 21 yd, 29 yd  
 $20^2 + 21^2 = 29^2$   
 $400 + 441 = 841$   
 $841 = 841$   
**Yes**

20. 8 cm, 8 cm, 11 cm  
 $8^2 + 8^2 = 11^2$   
 $64 + 64 = 121$   
 $128 \neq 121$   
**No**