

# Chapter 1: Pythagorean Theorem

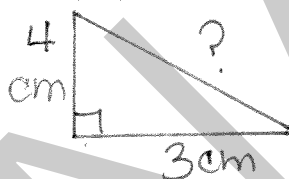
The Pythagorean theorem is a formula which helps us find the missing side of a triangle.

The formula is  $a^2 + b^2 = c^2$

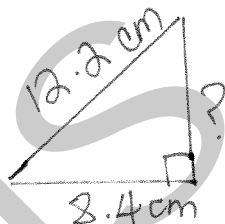
where 'a' and 'b' are the \_\_\_\_\_  
'c' is the \_\_\_\_\_

The \_\_\_\_\_ is the longest side and is always across  $90^\circ$ .

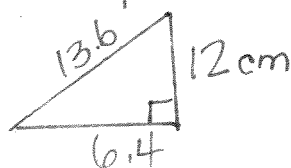
ex. ① Find the missing side



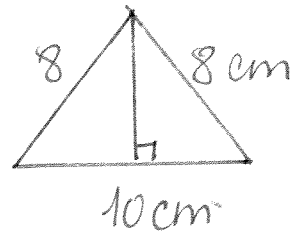
ex. ② Find missing side



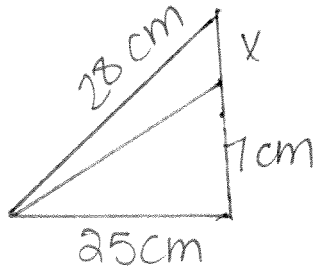
ex. ③ Is the following a Pythagorean triple? Will it form a right triangle?



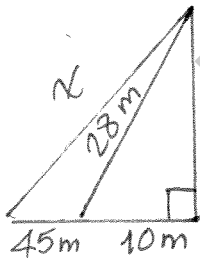
Ex ④ Calculate the area



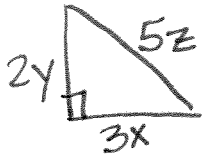
ex ⑤ Determine the value of  $x$  in the figure.



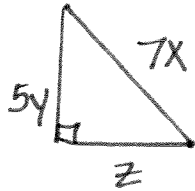
ex ⑥ Calculate the length of  $x$ .



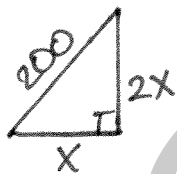
ex. ⑦ Write the equation



ex. ⑧ Solve for  $z$ .



ex. ⑨ Solve for  $x$



## Chapter 2: Types of numbers

### Real Numbers

symbol Real Numbers are classified into groups:

→ Natural Numbers: { }

→ Whole Numbers: { }

→ Integers: { }

Note: Integers are numbers on the number line

→ Rational Numbers: are numbers that can be written as a                      (ratio)

ex: {  $\frac{2}{3}$ , 0, -5,  $-\frac{1}{5}$ ,  $5.\bar{9}$  }

2 kinds: 1) finite decimal: (stops) ex:                     

2) infinite decimal: (repeats) ex:                     

→ Irrational Numbers: are numbers which can not be written as a fraction

ex:

Note: it is a number with a decimal that continues indefinitely & has no repeating pattern.

The square root of a number is either

$\sqrt{25} \rightarrow$  whole number

$\sqrt{31} \rightarrow$  irrational number.

Ex: Classify as rational, irrational,  
whole, integer, natural.

0.45

3.14159...

3.14159

0

$\frac{5}{3}$

$1\frac{2}{3}$

$\sqrt{8}$

$-\sqrt{81}$

$-\frac{9}{3}$

$\sqrt{25}$

$\frac{9}{3}$

$-\frac{3}{4}$

$\pi$

$3.\overline{14}$

The \_\_\_\_\_ of a number is the numbers  
that repeat in the decimal.

The \_\_\_\_\_ is the number  
written as a decimal (with the top  
bar if necessary)

# How to turn decimals to fractions

2 cases:

1st case: Period is zero.

ex: Turn 2.4 to a fraction.

$$2.4 =$$

steps ① Get rid of decimal  
1 decimal  $\times 10$   
2 decimals  $\times 100$   
⋮

ex: Turn 1.25 to a fraction ② Reduce

$$1.25 =$$

2nd case Period is not zero

ex: Turn  $1.2\overline{36}$  into a fraction

ANS:  $x = 1.23636\dots$

decimal after period:

decimal before period:

subtract

ex: Turn  $1.\overline{982}$  into a fraction

ANS  $x = 1.982982\dots$

after period:

Before period:

ex:  $x = 2.\overline{4}$

AFTER:

Before:

Subtract