Tuesday, April 16, 2019

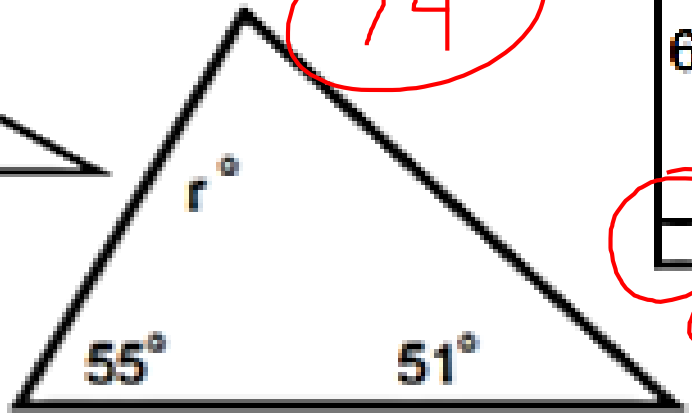
- Warm-up

△ angles sum to 180° ← degrees

  - Find the missing angle measurements in the given triangles:

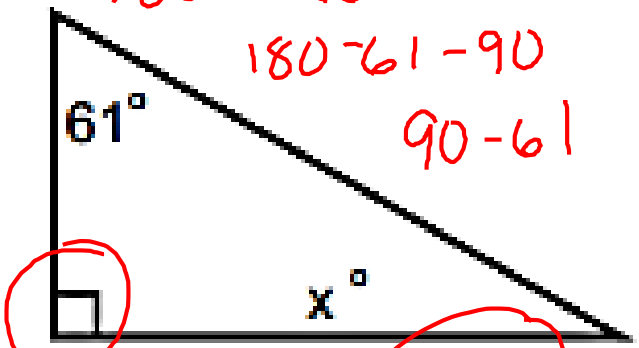
180 - (116 + 30)

34°



180 - 55 - 51 =

74°



180 - (61 + 90)

180 - 61 - 90

90 - 61

90°

29°

- What is Trigonometry?
  - important vocabulary
  - intro to triangles in a circle

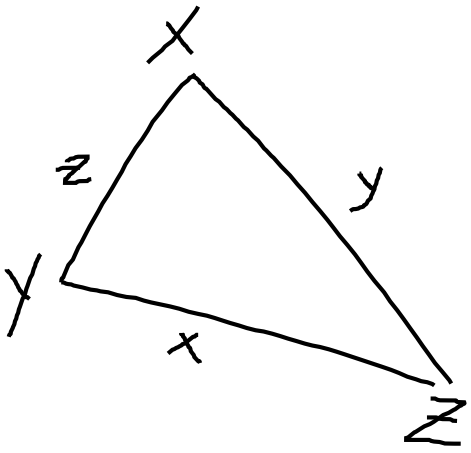
Objectives

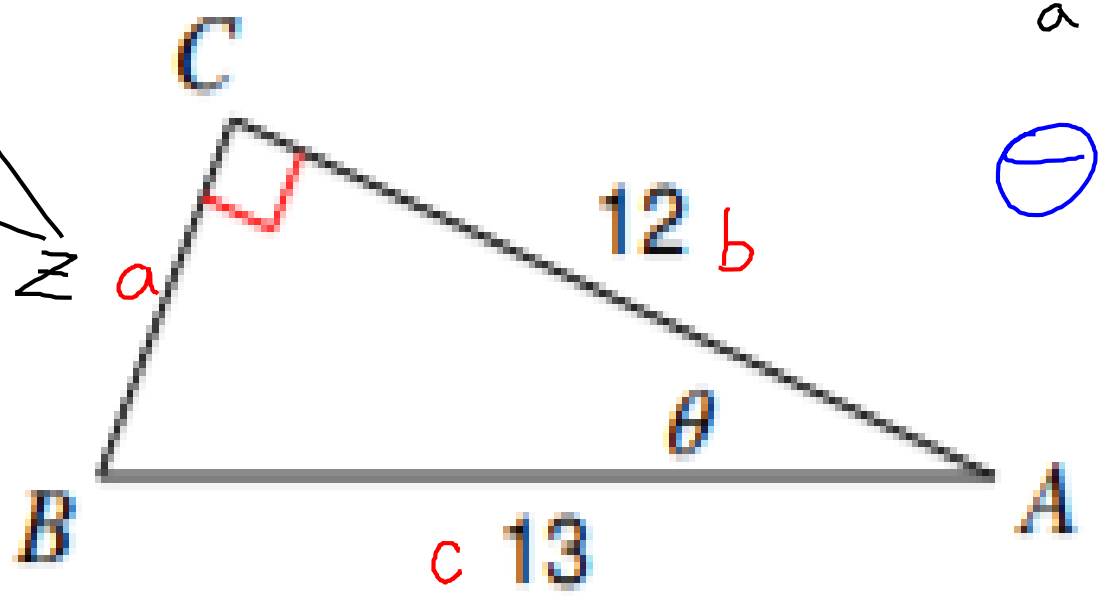
Content: I will describe the relationships between sides and angles of a right triangle using trigonometry.

Social: I will listen well and take good notes.

Language: I will clearly write vocabulary in a way that I can understand.

Naming Conventions for Triangles





total angle measurement in a △ = 180°

θ = theta

angle indicator

angles are capital letters

sides lower case letters

opposites match

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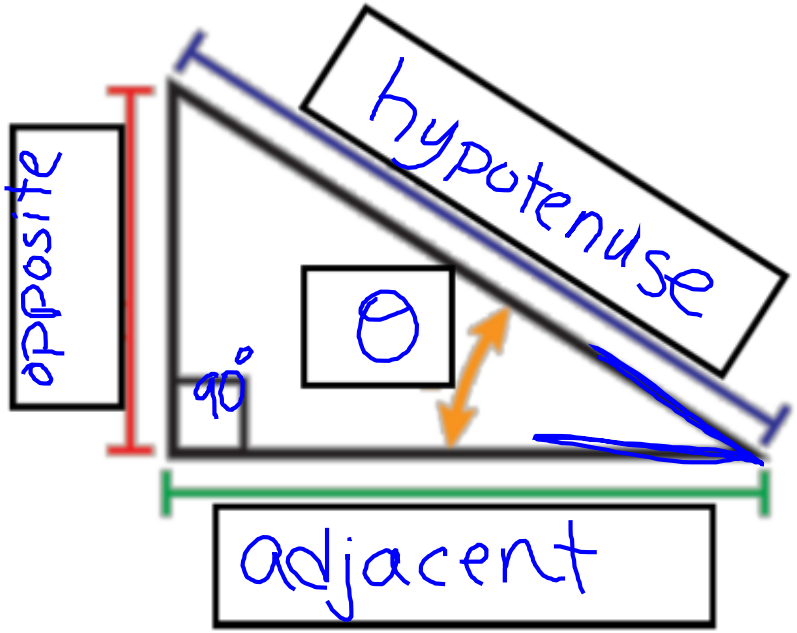
Important Vocabulary

Trigonometry Unit Notes



- The 90°/right angle is indicated by the little box in the corner.
- The "angle of interest" (what we know or need to know) is indicated by θ. (theta)
- The side opposite the right angle, which is the longest side, is called the hypotenuse (1)
- The side opposite θ is called the opposite (2).
- The side next to θ which is not the hypotenuse is called the adjacent (3).

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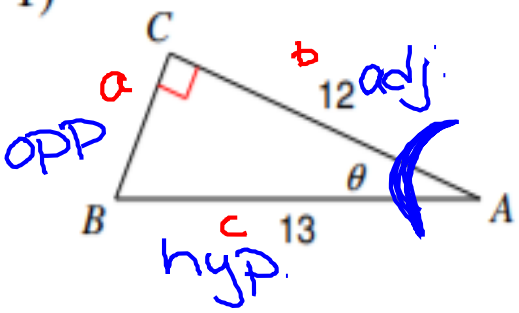
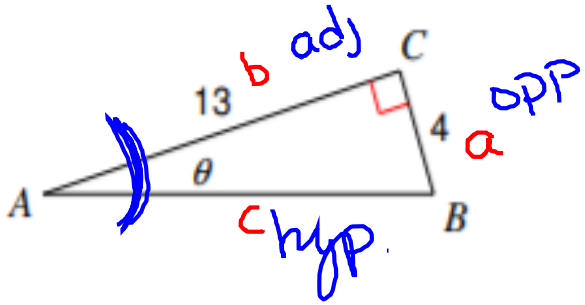
Practice Labeling

(unknown side = lower case of opposite letter)

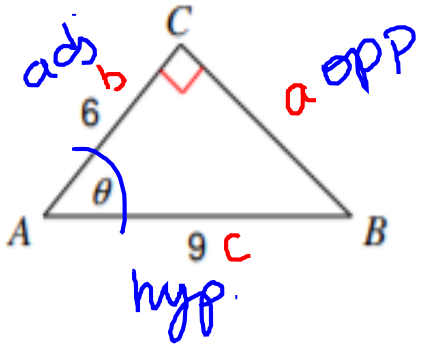
1)



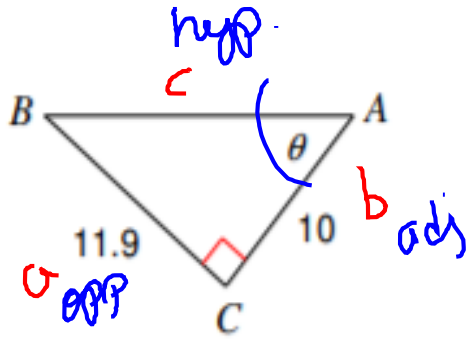
2)



3)



4)



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Brain Break

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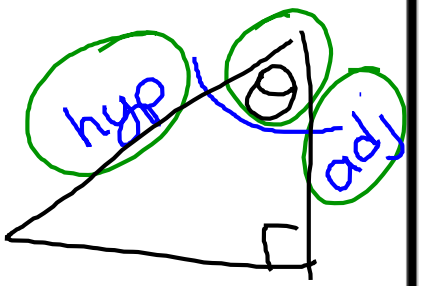
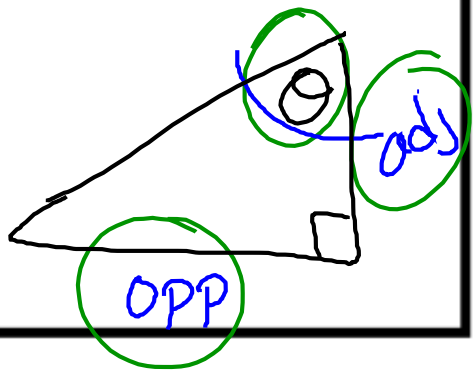
More Important Vocabulary

Soh Cah Toa

Name	Sine	Cosine	Tangent
Abbreviation	sin	cos	tan
Ratio (relationship)	$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$	$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$	$\tan\theta = \frac{\text{opposite}}{\text{adjacent}}$
Picture			

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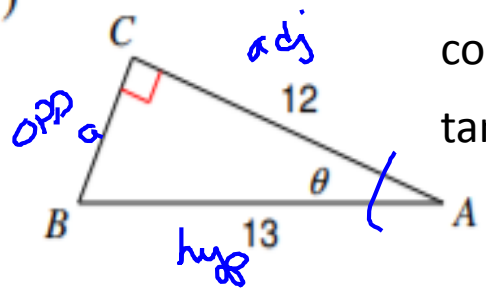
Practice Setting Up Ratios

Soh Cah Toa

1)

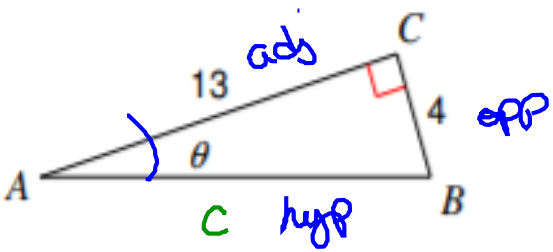


$\sin\theta = \frac{a}{13}$

$\cos\theta = \frac{12}{13}$

$\tan\theta = \frac{a}{12}$

2)

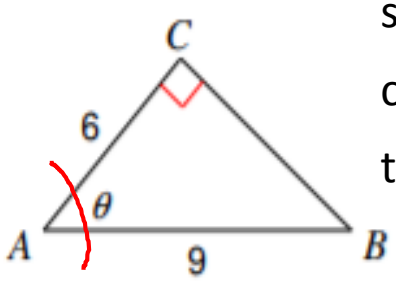


$\sin\theta = \frac{4}{c}$

$\cos\theta = \frac{13}{c}$

$\tan\theta = \frac{4}{13}$

3)

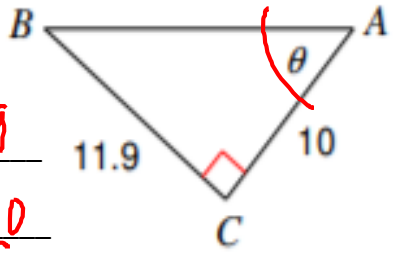


$\sin\theta = \frac{a}{9}$

$\cos\theta = \frac{6}{9}$

$\tan\theta = \frac{a}{6}$

4)



$\sin\theta = \frac{11.9}{c}$

$\cos\theta = \frac{10}{c}$

$\tan\theta = \frac{11.9}{10}$

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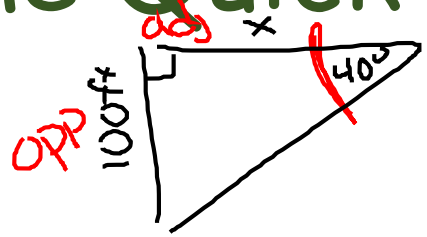
Some Quick Definitions



$\tan(40) = \frac{100}{x}$

angle of elevation

horizontal
(line of sight)

100ft

40°
angle
of depression

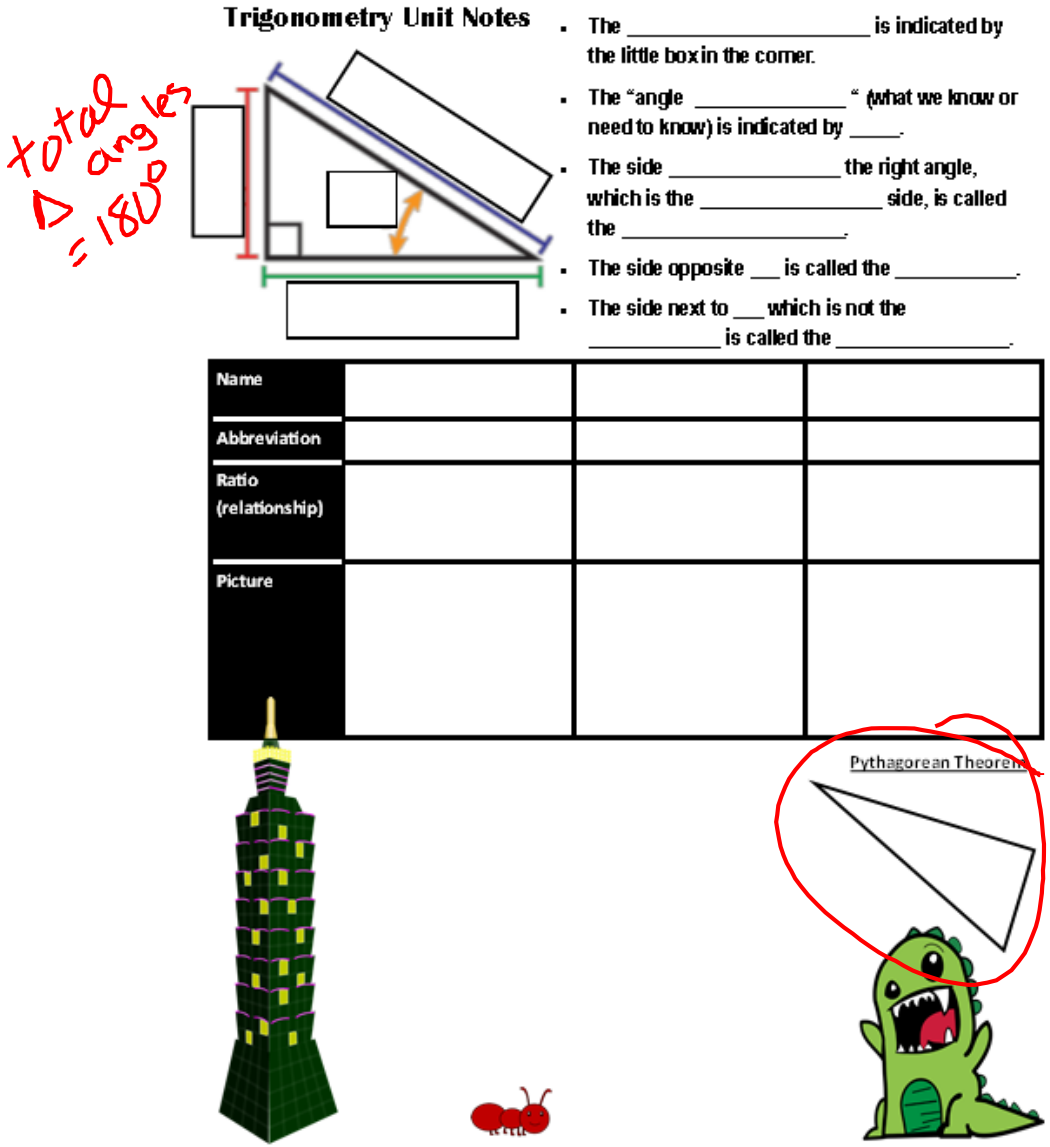
Objectives

Content: I will apply **right triangle** trigonometry to calculate missing **angles** and **sides**.

Social: I will help those around me who do not understand.

Language: I will apply my definitions of **trigonometry functions** in practice problems.

Check Notes Sheet



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Each part below gives angle measure and side length information for right $\triangle ABC$ with $\angle C$ a right angle. For each, sketch and label the triangle. Then find the lengths of the remaining two sides and find the measure of the third angle.

MODE – choose Degrees

a. $\angle B = 52°, a = 5$ m

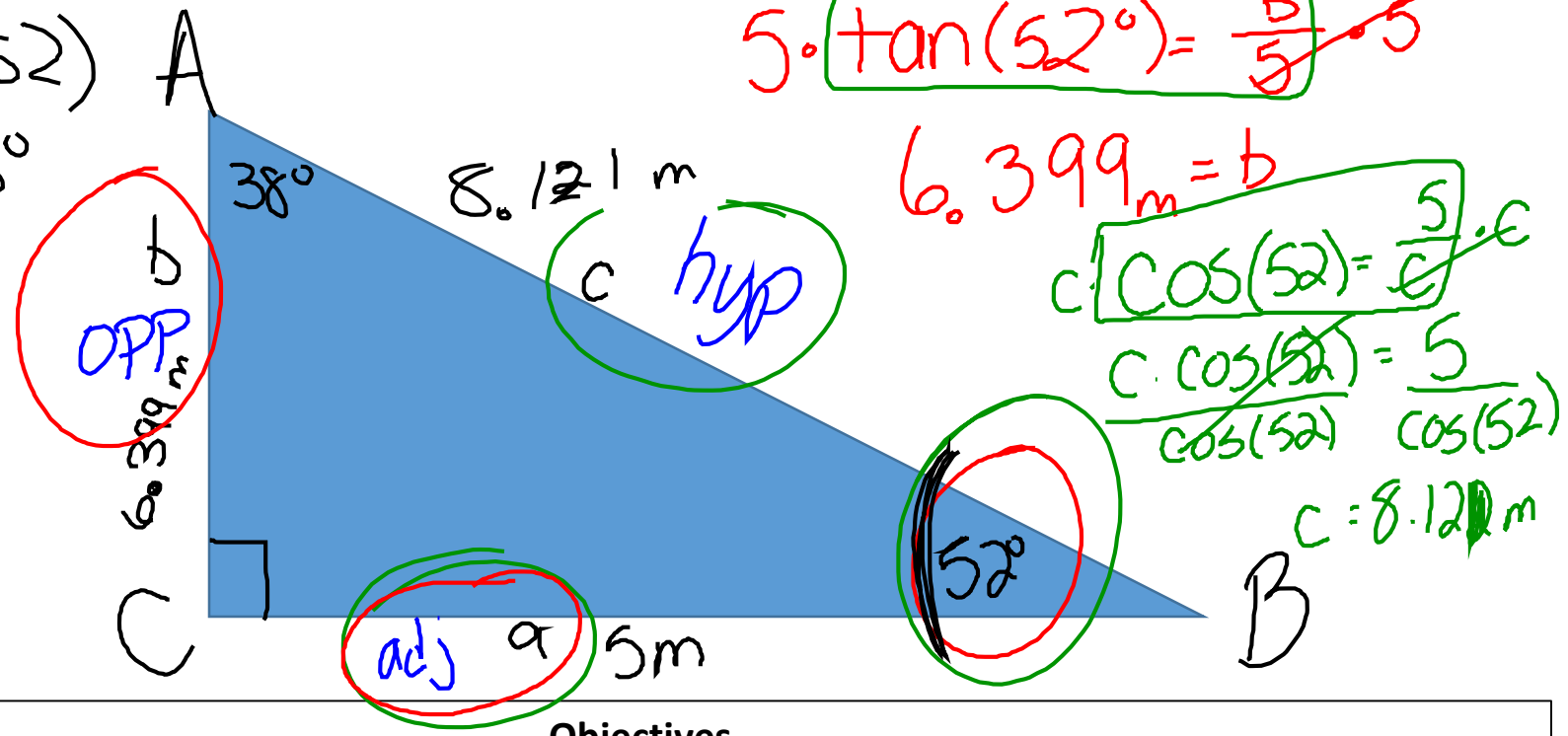
b. $\angle A = 48°, a = 15$ mi

c. $\angle A = 31°, b = 8$ in.

d. $\angle A = 70°, c = 14$ cm

$180 - (90 + 52)$

$m\angle A = 38°$



$5 \cdot \tan(52°) = \frac{b}{5} \cdot 5$

$6.399_m = b$

$\frac{5}{c} \cdot c \quad \cos(52) = \frac{5}{c}$

$\frac{c \cdot \cos(52)}{\cos(52)} = \frac{5}{\cos(52)}$

$c = 8.121$ m

Objectives

Content: I will use trigonometric ratios to solve triangle problems with missing angles and sides.

Social: I will participate in class activities and work through frustration.

Language: I will translate word problems into a picture so that trigonometric ratios are easier to use.

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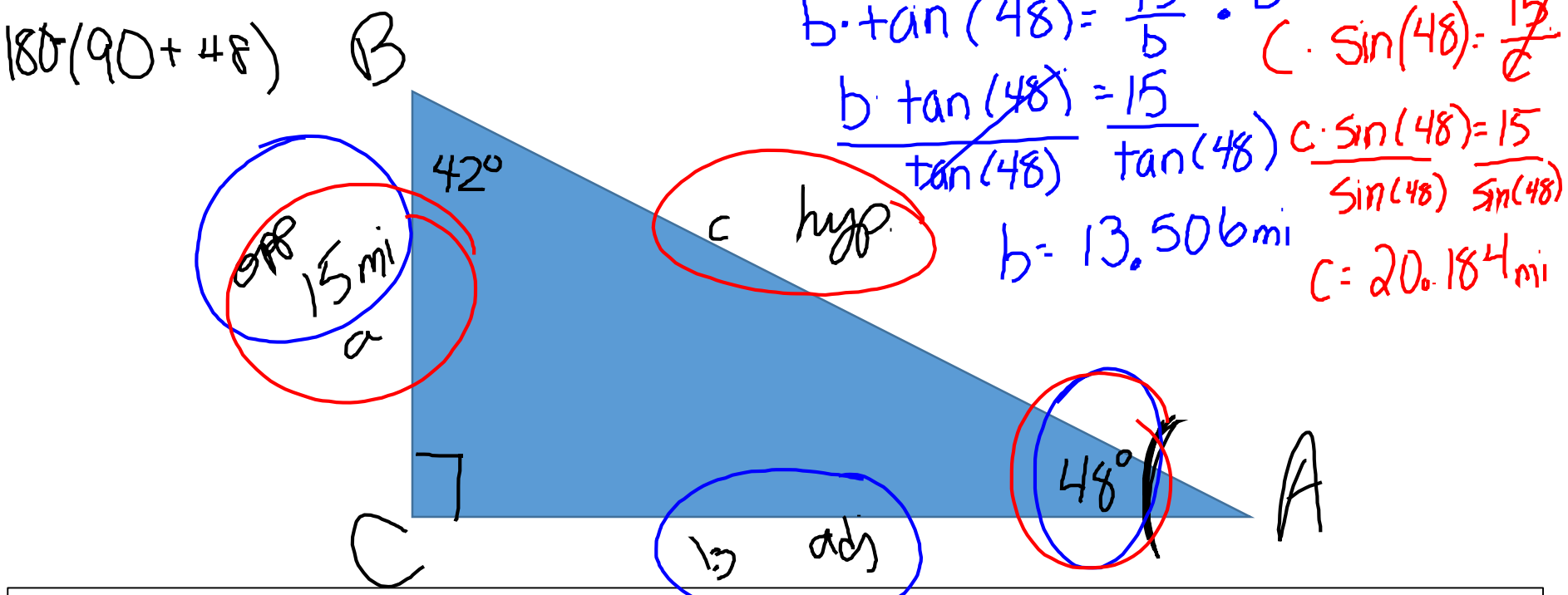

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