

Geometry Unit 10: Trigonometry

Bronx Early College Academy

Christopher J. Huson PhD

17 April 2023 - 5 May 2023

10.1 Slope and the tangent function 17 April

10.2 Inverse tangent function 18 April

10.3 Algebra practice 24 April

10.4 Applications 25 April

Learning Target: I can convert angle measures to slopes using the tangent function.

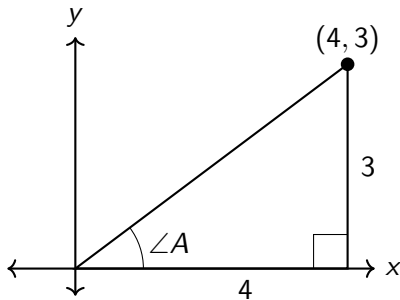
HSG.SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve problems 10.1 Monday 17 April

Do Now: Given right \triangle , as shown

1. What is the length of the hypotenuse?
2. What is the slope of the hypotenuse?
3. Estimate $m\angle A$ in degrees.

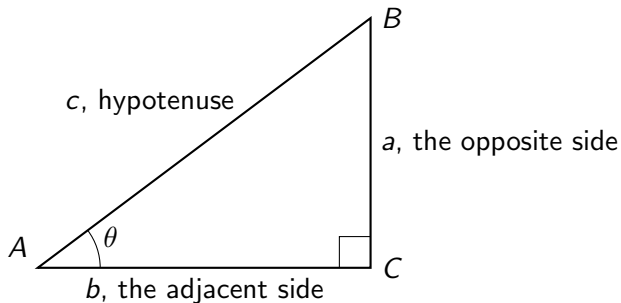
Lesson: The tangent function, calculator use

Homework: Complete the classwork practice, Deltamath problem set



Standard notation for trigonometric functions

Right triangle $\triangle ABC$ with side lengths a , b , c . $m\angle A = \theta$



Opposite The side across from the angle

Adjacent The side next to the angle

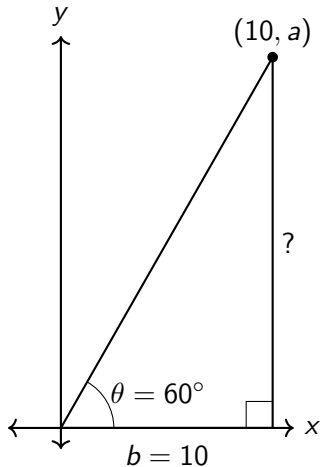
Theta A Greek letter used to represent the angle measure

tangent The ratio of the opposite side to the adjacent side

Find the height of a triangle with base $b = 10$ and angle 60°

$$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$$

Substitute the given values and use your calculator for $\tan(60^\circ)$



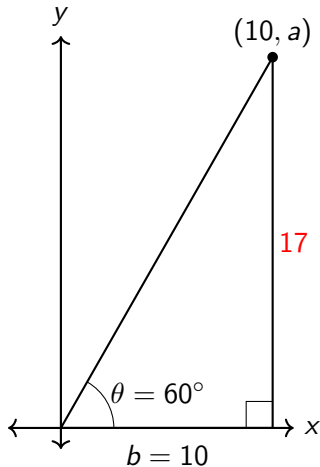
Find the height of a triangle with base $b = 10$ and angle 60 degrees

$$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$$

Substitute the given values and use your calculator for $\tan(60^\circ)$

$$\tan(60^\circ) = \frac{a}{10} \approx 1.732$$

$$a = 10 \times 1.732 \approx 17.32$$



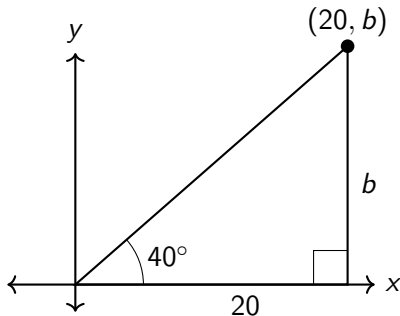
Learning Target: I can find an angle measure using inverse tangent.

CCSS.HSG.SRT.C.8 Use trig ratios and the Pythagorean Theorem to solve problems 10.2 Tuesday 18 April

Do Now: Given right \triangle shown, find its height b to the *nearest tenth*.

Lesson: The inverse tangent function, \tan^{-1}

Homework: Complete the classwork practice,
Deltamath problem set



Learning Target: I can model and solve with trigonometry algebra.

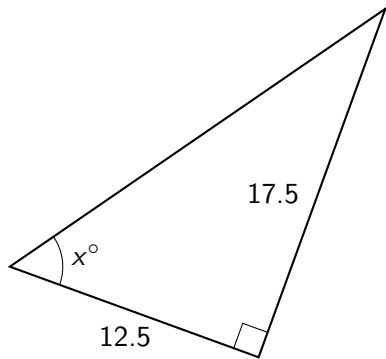
CCSS.HSG.SRT.C.8 Use trig ratios and the Pythagorean Theorem to solve problems 10.3 Monday 24 April

Do Now: Given right \triangle with leg lengths 12.5 and 17.5. Find the angle measure x to the *nearest degree*.

Lesson: Practice modeling with tangent function and solving the algebra

Calculator check (it should be on your desk)

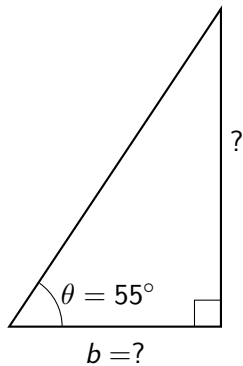
Homework: Complete the classwork practice, Deltamath problem set



Find the base of a triangle with height $h = 10$ and angle 60 degrees

$$\tan(\theta) = \frac{\textit{opposite}}{\textit{adjacent}}$$

Substitute the given values and use your calculator for $\tan(60^\circ)$



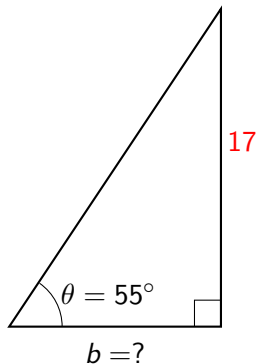
Find the base of a triangle with height $h = 10$ and angle 60 degrees

$$\tan(\theta) = \frac{\textit{opposite}}{\textit{adjacent}}$$

Substitute the given values and use your calculator for $\tan(60^\circ)$

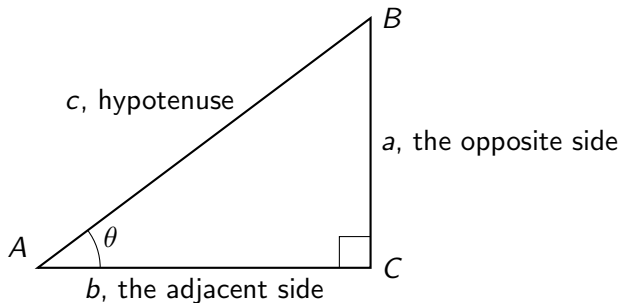
$$\tan(60^\circ) = \frac{a}{10} \approx 1.732$$

$$a = 10 \times 1.732 \approx 17.32$$



Convert degrees and radians

Right triangle $\triangle ABC$ with side lengths a , b , c . $m\angle A = \theta$



Opposite The side across from the angle

Adjacent The side next to the angle

Theta A Greek letter used to represent the angle measure

tangent The ratio of the opposite side to the adjacent side

Learning Target: I can model and solve with trigonometry algebra.

CCSS.HSG.SRT.C.8 Use trig ratios and the Pythagorean Theorem to solve problems 10.4 Tuesday 25 April

Do Now: Given right \triangle shown, find its height b to the *nearest tenth*.

Lesson: Applying trigonometry to real world situations

Deltamath exit quiz (10 minutes)

Homework: Complete the classwork practice, Deltamath problem set

Test Friday

