

Open Source Educational Tools

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An abstract geometric pattern of glowing blue lines and dots on a dark blue background, resembling a network or a complex structure. The lines and dots are arranged in a way that suggests a interconnected system or a complex structure, with some lines being thicker and more prominent than others. The overall effect is a sense of depth and complexity.



How a Bill Becomes a Law

After watching the video and answering the questions, students will understand the...

PRINT WORKSHEET

SAVE AND CONTINUE

Lesson Analytics

How a Bill Becomes a Law: Crash Course Government and Politic...



00:50

07:01



Preview



Crop Video

Finish Build

Add Question



01:05



Which of the following can submit an idea for a bill?

- A. Interest Group
- B. Constituent (citizen)
- C. Executive Branch
- D. All of the above



02:33



If you could write up a bill to possibly become law, what would your bill be about?



03:04



Within how many days must Congress be out of session in order for the President to pocket-veto a bill?

- A. One day
- B. Seven days
- C. Ten days
- D. Thirty days



03:26



Think about checks and balances within the government. How does the veto power demonstrate a check on the legislative branch?



05:49



True or false?: A majority of bills make it to the president's desk and are signed into law.

- A. True



The Flipped Classroom

DURING



Students practice applying key concepts with feedback

IN CLASS

GOAL

GOAL

GOAL

Students prepare to participate in class activities

BEFORE



OUT OF CLASS

AFTER

Students check their understanding and extend their learning



Properties of Logarithms - Everything You Need to Know!

RULES:

$$\log_a(x \cdot y) = \log_a x + \log_a y$$

$$\log_a\left(\frac{x}{y}\right) = \log_a x - \log_a y$$

$$\log_a(x^n) = n \cdot \log_a(x)$$



7:00 / 20:36





Testing Playposit

Search Code: n87556



1

VIDEO BULBS



1

ACTIVE STUDENTS



Go Premium

Supercharge your lessons

FILL OUT PROFILE

DESIGN VIDEO BULB

ADD STUDENTS

UPGRADE ACCOUNT

Tutorials

Getting Started

Teacher Feed



Mrs Incredible 7 months ago



Introduction to the Flipped Classroom

World History

Use this lesson to introduce your students to the basics of a flipped classroom and the benefits of this classroom change.



Mr. Awesome 7 months ago



Kid President's Pep Talk to Teachers and Stud..

Life Skills

Kid President is helping you get in the back to school spirit. Use this lesson to pep up your students and colleagues!

Safari

Simulations

► New Sims

- HTML5
- Physics
- Biology
- Chemistry
- Earth Science
- Math
- By Grade Level
- By Device
- All Sims
- Translated Sims

Teaching Resources

- Research
- Accessibility
- Donate



PHET for Every Classroom

Be an HTML5 Hero!

By converting our sims to HTML5, we make them seamlessly available across platforms and devices. Whether you have laptops, iPads, chromebooks, or BYOD, your favorite PhET sims are always right at your fingertips.

Become part of our mission today, and transform the learning experiences of students everywhere!

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New Sims

Energy Forms and Changes

Wave Interference

Fractions: Mixed Numbers

Build a Fraction

Coulomb's Law

Equality Explorer

Energy

Pie Chart

Bar Graph

Grid

Speed

Mass

Small Large

Friction

None Lots

⏸ ⏪ ⏩ ⏹

● Slow Motion
● Normal

[Restart Skater](#)

Simulations

► New Sims

► HTML5

Physics

Biology

Chemistry

Earth Science

► Math

► Math Concepts

Math Applications

By Grade Level

Elementary School

► Middle School

► High School

University

By Device

► iPad/Tablet

► Chromebook

All Sims

Translated Sims

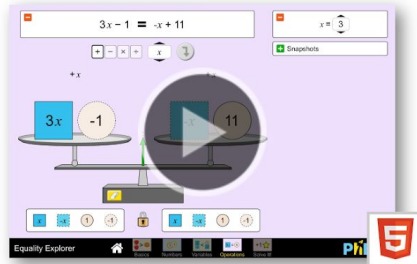
Teaching Resources

Research

Accessibility

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Equality Explorer



↓ DOWNLOAD

</> EMBED

- Solving Equations
- Inequalities
- Inverse Operations

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Simulations

Teaching Resources

Tips for Using PhET

► Browse Activities

Share your Activities

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Workshops

Research

Accessibility

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Browse Activities

Simulations	Types	Subjects	Levels	Languages
All Simulations	All Types	All Subjects	All Levels	Cree
Acid-Base Solutions (HTML5)	Lab	Astronomy	K-5	Croatian
Acid-Base Solutions	HW	Biology	MS	Czech
Alpha Decay	MC	Chemistry	HS	Danish
Area Builder (HTML5)	Discuss	Earth Science	UG-Intro	Divehi
Area Model Algebra (HTML5)	Demo	Mathematics	UG-Adv	Dutch
Area Model Decimals (HTML5)	Guided	Physics	Grad	Dzongkha
Area Model Introduction (HTML5)	Other	Other	Other	English

 Optional text search

TITLE	★	PhET	AUTHORS	LEVEL	TYPE	SUBJECT	SIMULATIONS
Discovering patterns of current and voltage in series and parallel circuits	★	PhET	Argenta Price, Alan Calac	HS	Lab Guided	Physics	Circuit Construction Kit: DC (HTML5)
Kinematic Equation Activity	★		Shea Phillips	HS	Guided	Physics	Projectile Motion (HTML5) Projectile Motion
Collision Lab Basics	★		Brett Moser	HS MS	Guided Lab	Physics	Collision Lab
Faraday's Electromagnetic Lab	★		Dr. Wendy Adams	HS UG-Intro	HW Guided	Physics	Faraday's Electromagnetic Lab
Maze Game- A Velocity & Acceleration Comparison	★		Ashley Webb	HS UG-Intro	Guided HW Discuss	Physics	Maze Game
Charges and Charged Objects Investigation			Steve Banasiak	HS	Lab Guided	Physics	Balloons and Static Electricity (HTML5) John Travoltage (HTML5)
Activity: Wave on a String			Aaron Keller	MS UG-Intro HS	Lab Guided Discuss	Chemistry Astronomy Physics	Wave on a String (HTML5)



PhET conducts research on both the **design** and **use** of interactive simulations to better understand:

1. Which characteristics make these tools effective for learning and why
2. How students engage and interact with these tools to learn, and what influences this process
3. When, how, and why these tools are effective in a variety of learning environments

The PhET simulation design principles are based on research on how students learn (Bransford et al., 2000) and from our simulation interviews (see [PhET Design Process](#)). Between four and six think-aloud style interviews with individual students are done with each simulation. These interviews provide a rich data source for studying interface design and student learning. The [PhET Look and Feel](#) briefly describes our interface design principles and a complete discussion is found in the pair of papers by [Adams et al., 2008](#).

Research answers to commonly asked questions:

"Can PhET sims replace real lab equipment?"


Our studies have shown that PhET sims are more effective for conceptual understanding; however, there are many goals of hands-on labs that simulations do not address. For example, specific skills relating to the functioning of equipment. Depending on the goals of your laboratory, it may be more effective to use just sims or a combination of sims and real equipment


"Do students learn if I just tell them to go home and play with a sim?"

Most students do not have the necessary drive to spend time playing with a science simulation (they're fun, but not that fun) on their own time unless there is a *direct* motivation such as their grade. This is one of the reasons we are pursuing the project of how to best integrate sims into homework.

"Where is the best place to use PhET sims in my course?"

We have found PhET sims to be very effective in lecture, in class activities, lab and homework. They are designed with minimal text so that they can easily be integrated into every aspect of a course.




University of Colorado
Boulder

Simulations

Teaching Resources

Research






Accessibility

- ▶ Accessible Simulations
 - Research and Design
 - Technical Implementation



Donate

Accessible Simulations




▼ Accessibility Features

-  Alternative Input (e.g., keyboard navigation) ⊕
-  Simple Description (using screen reader software) ⊕
-  Dynamic Description (dynamic and described interaction) ⊕
-  Sound and Sonification ⊕
-  Prototype ⊕




▼ Simulations with Accessibility Features

Balloons and Static Electricity  


- Published Version: [Balloons and Static Electricity](#)
- Grab a balloon to explore concepts of static electricity such as charge transfer, attraction, repulsion, and induced charge.

John Travoltage   

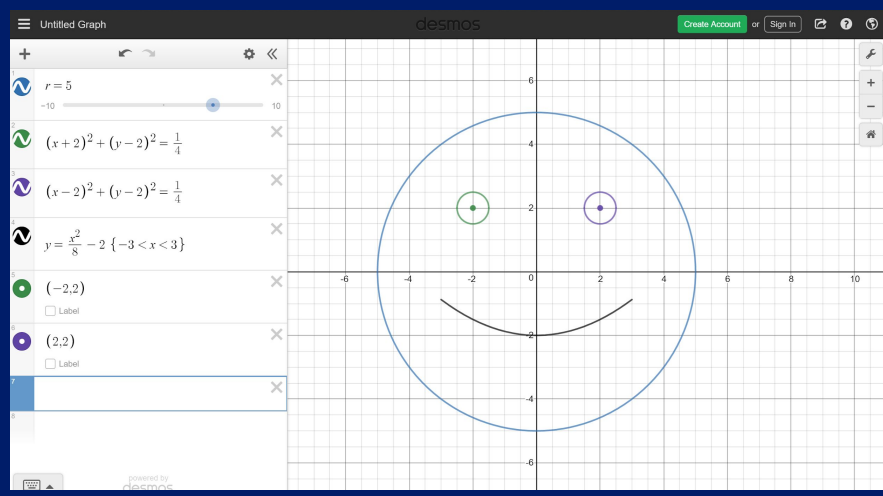
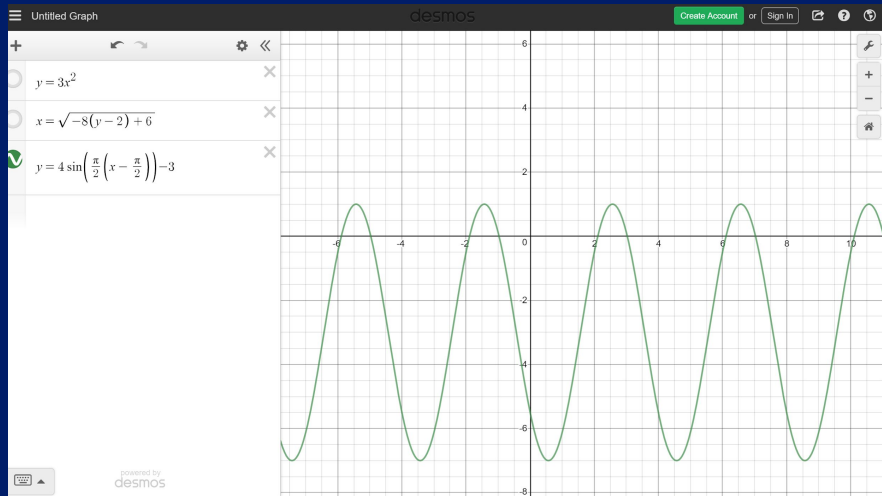
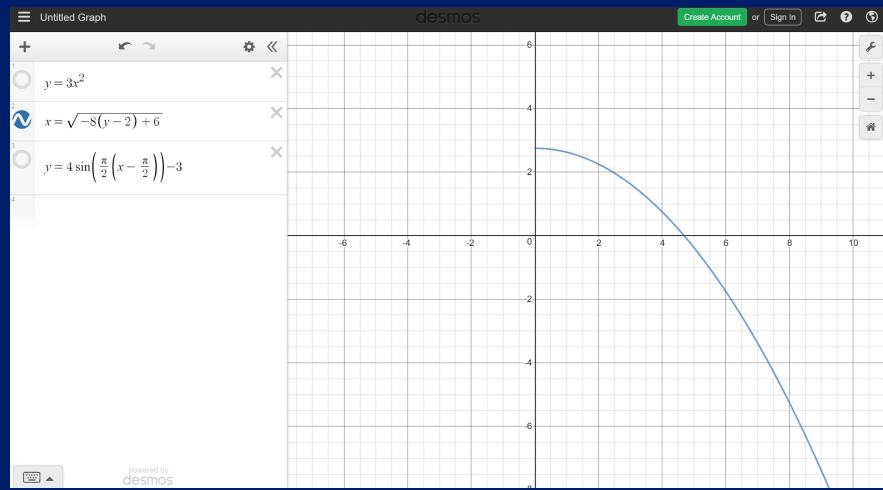
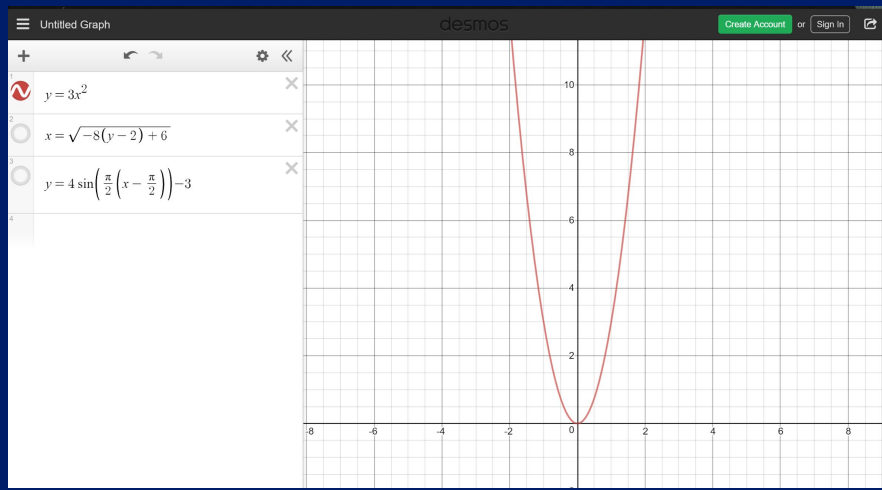
- Published Version: [John Travoltage](#)
- Play with John's foot and arm to explore when he gets a zap!

Resistance in a Wire   

- Published Version: [Resistance in a Wire](#)
- Observe changes to the equation and wire as you play with the resistivity, length, and area sliders.

Coulomb's Law 

- Published Version: [Coulomb's Law](#)
- Observe changes to electrostatic force as you play with the distance between charges and charge amounts at both macro and atomic scales.



Home

Most Popular

Latest

BUNDLES

Conics

Exponential

Expressions



Marbleslides: Lines

by Desmos | 45-60 minutes | Development

Mobile Tablet Laptop

Teacher Guide



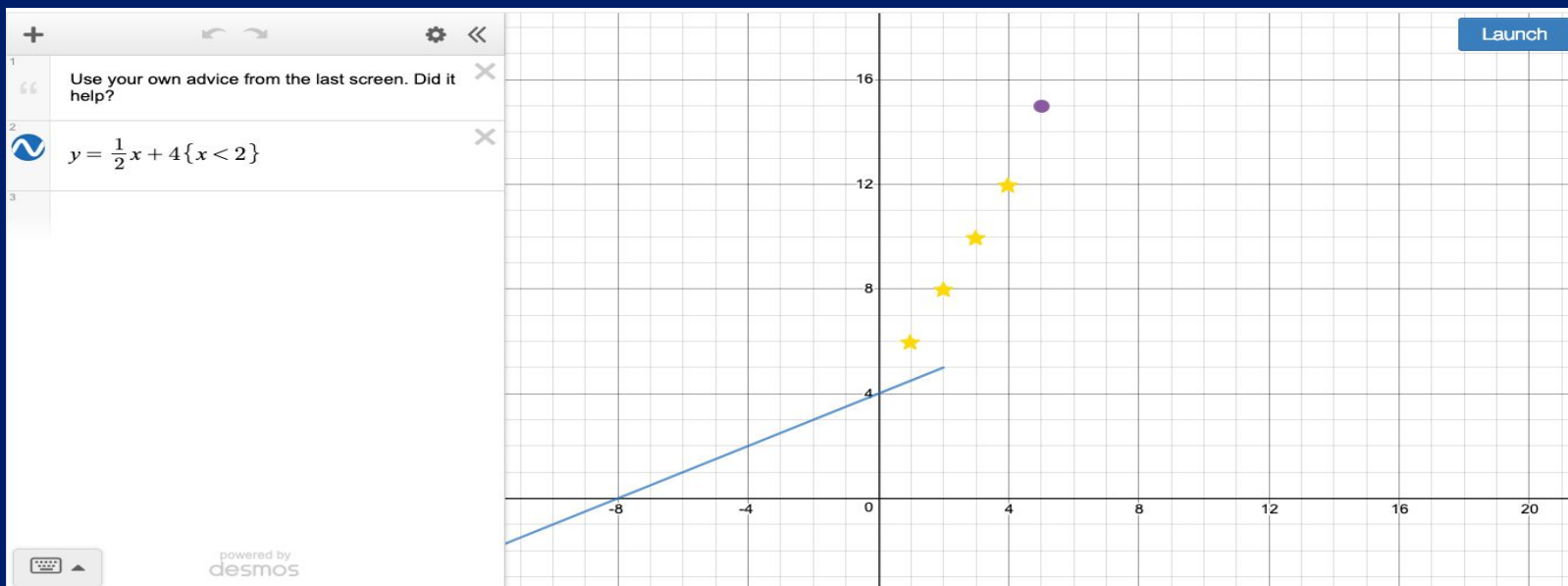
In this delightful and challenging activity, students will transform lines so that the marbles go through the stars. Students will test their ideas by launching the marbles, and have a chance to revise before trying the next challenge.

French translation courtesy of Maryse LeBouthillier:

<https://teacher.desmos.com/activitybuilder/custom/58ebe086b3363305b00ae6a1>

Hebrew translation courtesy of Noam Tene:

<https://teacher.desmos.com/activitybuilder/custom/5be33aaca8aee70d872b78b8>



 SWITCH TO TEACHER VERSION

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CLASSES

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SUBJECTS

EXPLORE 

What do you want to learn today?



Math



Grade 1–5



Arithmetic



Measurement



Algebra



Geometry



Probability



Statistics

Science



Grade K–5



Earth Science



Life Science



Physical Science



Biology



Chemistry



Physics

English



Writing



Spelling

More



Engineering



Technology



Astronomy



History

[+ Expand All](#)

▼ Basics of Geometry

Geometry Terms

▼ Shapes

[2D Shapes](#)[Identify Shapes](#)[Identify Less Common Shapes](#)[Composite Shapes](#)

▼ Line Segments

[Definition of Line Segment](#)[Midpoints and Segment Bisectors](#)[Midpoint Formula](#)[Points that Partition Line Segments](#)

▼ Angles

[Introduction to Angles](#)[Identification of Angles by Vertex and Ray](#)[Measuring Angles](#)

Measuring Angles
Measurement of angles with protractors and the Angle Addition Postulate.

Concept Map

CK-12 CONTENT COMMUNITY CONTENT All Levels [VIEW ALL](#)

We have provided many ways for you to learn about this topic. [+ Create your own content](#)

READ ck-12

Angle Measurement
Basic 10 8 9

Find angle measures using a protractor and the Angle Addition Postulate.

11 [2 More Reads](#)

PLIX ck-12

Angle Measurement: Adding Angles
At Grade

Angle Measurement: Adding Angles Interactive

0 [1 More PLIX](#)

VIDEO ck-12

Angle Basics
Basic

Learn all the basics you'll need to know about angles. James Sousa introduces...

0 [11 More Videos](#)

ACTIVITIES ck-12

Angle Measurement Discussion Questions
At Grade

A list of student-submitted discussion questions for Angle Measurement.

0

STUDY AIDS ck-12

Angles
At Grade

This study guide reviews angle nomenclature, how to measure angles,...

4

PRACTICE ck-12

Estimated
5 mins
to complete

Measuring Angles
At Grade

[Practice](#)

0

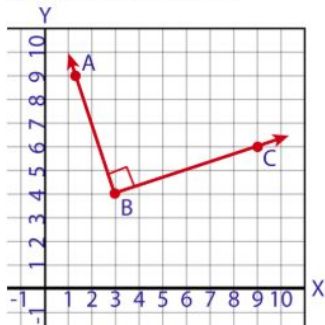
REAL WORLD ck-12

Angle Measurement
At Grade

Having trouble remembering how to measure an angle or trouble estimating...

0/10

Use your knowledge of angle measurements to estimate the measurement of angle ABC:



a 22 degrees

b 5 degrees

c 45 degrees

d 90 degrees

GET A HINT

SCRATCHPAD

Improve this question

Assign to class

...

Feedback

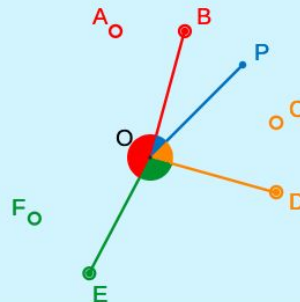
Aa

E

Show Description

Challenge 1/6

The measure of angle $\angle AOP =$ degrees.



$\angle AOB = 168^\circ$

$\angle EOP = 102^\circ$

$\angle COD = 60^\circ$

$\angle BOP = 30^\circ$

↺



Math

- Early math
- Arithmetic
- Pre-algebra
- Algebra 1
- Geometry
- Algebra 2
- Trigonometry
- Precalculus
- Statistics & probability
- AP® Calculus AB
- AP® Calculus BC
- AP® Statistics
- Multivariable calculus
- Differential equations
- Linear algebra

Math by grade

- Kindergarten
- 1st grade
- 2nd grade
- 3rd grade
- 4th grade
- 5th grade
- 6th grade
- 7th grade
- 8th grade
- Illustrative Mathematics
- Eureka Math/EngageNY
- High school

Science & engineering

- Physics
- AP Physics 1
- AP Physics 2
- AP Physics C
- Health & medicine
- Electrical engineering

Computing

- Computer programming
- Computer science
- Information
- Mathematics
- Grammar

Economics & finance

- Microeconomics
- Macroeconomics
- Finance & capital markets

Test prep

- SAT
- LSAT
- MCAT
- GMAT
- IIT JEE
- NCLEX-RN

College, careers, & more

- College admissions
- Careers
- Personal finance
- Entrepreneurship
- Growth mindset



Trig identity reference

Look up AND understand all your favorite trig identities.

Google Classroom Facebook Twitter Email

Reciprocal and quotient identities

$$\sec(\theta) = \frac{1}{\cos(\theta)}$$

[Explain]

$$\csc(\theta) = \frac{1}{\sin(\theta)}$$

[Explain]

$$\cot(\theta) = \frac{1}{\tan(\theta)}$$

[Explain]

$$\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)}$$

[Explain]

$$\cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)}$$

[Explain]

Pythagorean identities

$$\sin^2(\theta) + \cos^2(\theta) = 1^2$$

[Explain]

$$\tan^2(\theta) + 1^2 = \sec^2(\theta)$$

[Explain]

$$\cot^2(\theta) + 1^2 = \csc^2(\theta)$$

[Explain]

Identities that come from sums, differences, multiples, and fractions of angles

Math

Trigonometry

Staff picks



Article

Trig identity reference

Using trigonometric identities to solve problems



6:34

Proof of the law of sines

The law of sines



9:04

Unit circle

The unit circle definition of sine, cosine, and tangent



Exercise

Solve for a side in right triangles

Solving for a side in a right triangle using the trigonometric ratios

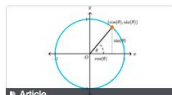


9:22

Graph of $y=\sin(x)$

The graphs of sine, cosine, and tangent

Review articles



Article

Trig unit circle review

The unit circle definition of sine, cosine, and tangent

$$\frac{a}{\sin(\alpha)} = \frac{b}{\sin(\beta)} = \frac{c}{\sin(\gamma)}$$

Article

Laws of sines and cosines review

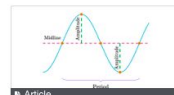
Solving general triangles



Article

Pythagorean identity review

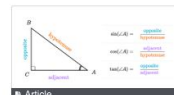
The Pythagorean identity



Article

Midline, amplitude, and period review

Period of sinusoidal functions



Article

Trigonometric ratios review

The reciprocal trigonometric ratios

Search



Khan Academy

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gabriella.riccio123

Your class

No students

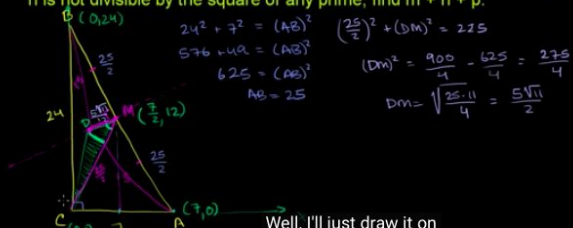
due by

Mar 13th, 11:59 PM

Save

Assign

Triangle ABC is a right triangle with AC = 7, BC = 24, and right angle at C. Point M is the midpoint of AB, and D is on the same side of line AB as C so that AD = BD = 15. Given that the area of triangle CDM may be expressed as $\frac{m\sqrt{n}}{p}$, where m, n, and p are positive integers, m and p are relatively prime, and n is not divisible by the square of any prime, find m + n + p.





Well, I'll just draw it on this drawing right over here.

8:14 / 16:35



Trigonometry ▾

>  **Trigonometry with right triangles**
Unit

>  **Trigonometry with general triangles**
Unit

>  **The unit circle definition of sine, cosine,**
Unit

>  **Graphs of trigonometric functions**
Unit

>  **Trigonometric equations and identities**
Unit

Amplitude of sinusoidal functions from equation

[Full question list](#)

What is the amplitude of $h(x) = 7 \sin \left(\frac{3\pi}{4}x - \frac{\pi}{4} \right) + 6$?

units

 **Stuck?** [Watch a video or use a hint.](#)

[Report a problem](#)

ATTEMPT

First

Questions are ordered by most missed.

Q4 4 4

Q2 2 9

Q7 2 7

Q1 2 6

Q9 2 6

Q11 2 5

What is the amplitude of $y = -6 \sin(3\pi x + 4) - 2$?

_____ units

Responses Draw

Hints

Reveal answer



This was the most-missed question.

4 of the 8 students who were asked this question answered it incorrectly.

[View which students missed this problem](#)



Part 3 of 3: Assignment reports [Exit tour \(esc\)](#)



Parents and mentors

Khan Academy accounts

Learn

Create accounts for you and your children

Helping your child

Learn

- You can learn anything
- See your student's experience
- Encouraging your child
- Encourage students to monitor their own progress
- Ways to support learners when you don't know the content
- Start tutoring with Khan Academy
- Stories from parents using KA to tutor
- How does Khan Academy personalize my child's learning experience?
- Growth mindset lesson plan
- Motivating different types of learners
- Find relevant content
- Glossary of Khan Academy terms
- Parent's guide to Official SAT Practice

Thank You!