


Seminars for Key Concepts at Homework Help

Found in the **Best Sessions** section at Homework Help

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 www.homeworkhelp.il.org

Below is a list of 68 seminars currently offered at the Homework Help website.

Please invite your students to visit Homework Help and to view these sessions that have been prepared by the **Independent Learning Centre**.

They may also serve as excellent demonstrations during a lesson or for review.

Using Similar Triangles to Solve Problems (Part 3)

Example 3: If the area of the smaller triangle is 20 m^2 , determine the area of the larger triangle.

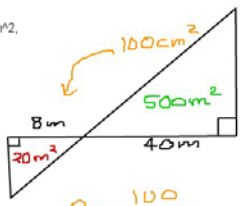
$$k = \frac{40}{8} = 5$$

$$A = 20 \text{ m}^2 \times 5^2$$

$$= 20 \text{ m}^2 \times 25$$

$$= 500 \text{ m}^2$$

The area of the larger triangle is 500 m^2 .



$$A = \frac{100}{8^2}$$

$$= \frac{100}{25}$$

$$= 4 \text{ cm}^2$$

Using Similar Triangles to Solve Problems
Time 6:28

Finding the Shortest Distance From a Point to a Line

Example 1: Determine the shortest distance from the cabin at (8,3) to the road between the campsites at (2,13) and (14,10).

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 13}{14 - 2} = \frac{-3}{12} = -\frac{1}{4}$$

$$y = 4x + b$$

$$3 = 4(8) + b$$

$$3 = 32 + b$$

$$b = -29$$

$$y = 4x - 29$$

$$4x - 29 = -\frac{1}{4}x + \frac{27}{2}$$

$$4x + \frac{1}{4}x = \frac{27}{2} + 29$$

$$\frac{16}{4}x + \frac{1}{4}x = \frac{27}{2} + \frac{58}{2}$$

$$\frac{17}{4}x = \frac{85}{2}$$

$$x = \frac{85}{2} \times \frac{4}{17} = \frac{85 \times 2}{17} = 10$$

$$y = 4(10) - 29 = 40 - 29 = 11$$


The shortest distance is the length of the segment from (8,3) to (10,11).

$$d = \sqrt{(10 - 8)^2 + (11 - 3)^2} = \sqrt{2^2 + 8^2} = \sqrt{4 + 64} = \sqrt{68} = 2\sqrt{17}$$

- Find the slope of the line and equation
- The shortest distance line will have a perpendicular slope to the original line.
- Find the equation of the line.
- Find where the lines intersect.

How do you find the shortest distance from a point to a line?
Time 22:30

Tips for Writing EQAO Geometry questions Part 1.



All quadrilaterals = 360 degrees

Angles on a line = 180 degrees/ Supplementary

VALUE	JUSTIFICATION
$x = 125$	$360 - 105 - 90 - 40$ The sum of all the interior angles = 360
y	

EQAO: Tips for Writing Geometry questions Part 1
Time 8:33

The Sine Law (Part 3)

Example 3: Ship A is 2.3 km from a lighthouse. The distance between ships A and B is 1.7 km. The angle between the lighthouse, ship B and ship A is 66 degrees. Solve the triangle to find all unknown sides and angles.

$$\frac{\sin L}{l} = \frac{\sin B}{b}$$

$$\frac{\sin L}{1.7} = \frac{\sin 66^\circ}{2.3}$$

$$2.3 \sin L = 1.7 \sin 66^\circ$$

$$\sin L = \frac{1.7 \sin 66^\circ}{2.3}$$

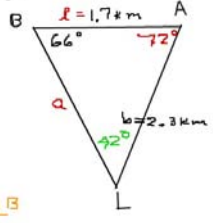
$$\sin L = 0.6752$$

$$L = \sin^{-1}(0.6752)$$

$$L = 42^\circ$$

$A = 180 - 66 - 42 = 72^\circ$

$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{\sin 72^\circ}{a} = \frac{\sin 66^\circ}{2.3}$$


Sine Law Part 3: Solving a triangle
Time 12:35

For more information, please contact:
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List of Seminars

Tangent Ratios: Part 2

Work through examples using tangent ratio.

Circles: Equation of a circle Part 2

How do you find the equation of a circle through a specific point and how do you check if points are inside, on or outside a circle?

How do you multiply polynomials?

Learn to expand polynomials by using arrows to organize your work.

How do you factor by grouping?

Learn to factor polynomials by grouping.

How do you common factor?

The first step in factoring is always to look for a common factor.

Tangent Ratios: Part 1

Learn about the tangent ratio (tan) in right angle triangles.

Factoring Quadratics Part 1

Learn to factor quadratics by working through examples.

Factoring The Difference of Two Squares

Learn how to recognize and factor difference of squares.

Sine and Cosine Ratios: Part 1

This seminar covers the basics of the trig ratios sine and cosine.

EQAO tips for dealing with stress

EQAO can be stressful. An experienced teacher shares some tricks and tips for alleviating the stress of EQAO.

Trigonometry: Solving Problems Part 2

How do you use right angle trigonometry to solve problems?

Circles: Equations of Circles Part 1

How do you find the equation of a circle, $C(0,0)$, with a certain radius?

Elimination Part 2: Solving systems of equations

Continuing from Part 1, practice using elimination to solve linear systems.

Similar Triangles Part 3: Similarity statements

Similarity statements need to be set up carefully. Learn how in this seminar.

Sine Law Part 3: Solving a triangle

How do you use the Sine Law when solving a triangle?

Factored Form: Using intercepts Part 2

How do you use intercepts to graph a parabola?

Factoring Perfect Square Trinomials

Learn to identify and factor perfect square trinomials.

How to Factor Part 2: Factoring Trinomials

Part 2 of a series of seminars about factoring.

How do you solve problems with trigonometry?

Solve two word problems using all of the trig tools

Sine and Cosine Ratios: Part 2

Continuing from the theory learned in Part 1, learn how to use sine and cosine to find angles or sides in right triangles.

Trigonometry: Solving Problems Part 1

How do you use right angle trigonometry to solve problems?

EQAO: Measurement questions on EQAO

Learn how to approach measurement questions on the EQAO

EQAO: Ratio and Proportion Questions

Learn tips and strategies for solving ratio and proportion questions on the EQAO.

EQAO: Percent and numeracy questions

Solve an EQAO problem involving cost and taxes. Two methods to solve the question are shown.

Elimination Part 1: Solving systems of equations

Learn to solve a system of equations using elimination.

Substitution Part 1: Solving systems of equations

Learn how to solve a linear system using substitution.

EQAO - how to write multiple choice questions

EQAO is a combination of multiple choice and open response questions. Learn how to successfully answer multiple choice questions.

Factored Form: Part 3 Finding equations.

How do you find an equation for a parabola using intercept form?

Factored Form: Using intercepts Part 1

How do you use intercepts to graph a parabola?

Factoring Quadratics Part 2: How do you solve a problem with a quadratic equation using factoring?

In previous seminars we have developed factoring skills. In this seminar we apply them to a word problem.

Similar Triangles Part 3: What are the properties of similar and congruent triangles?

This seminar focuses on how to identify whether two triangles are similar or congruent.

Similar Triangles: How do you use similar triangles to solve problems? Part 1

This seminar looks at how similar triangles can be used to solve problems.

Cosine Law Part 2: How do you use the Cosine Law to find sides in a triangle?

The Cosine Law allows us to find the sides of a non-right triangle, in this case, the width of a river.

Sine Law Part 2: How to use the Sine Law.

How do you use the Sine Law to find a side and also an angle in a triangle?

How to Factor Part 1: Common Factoring and Factoring by Grouping

Part 1 of a series of seminars about factoring.

How to Factor Part 3: How do you factor the Special Products?

Part 3 of a series of seminars on factoring.

Differences: How do you use finite differences to determine if a relation is quadratic?

Learn how to use differences to decide if a relation is linear or quadratic.

How do you factor $ax^2 + bx + c$ using decomposition?

Factor trinomials using decomposition.

Graphing Quadratics Part 3: Graphing information from a word problem

Use a Cartesian plane to graph the arch of a bridge.

Graphing Quadratics Part 1: Graph $y = ax^2 + bx + c$ using a table of values.

Graph two quadratic relations using a table of values.

How do you factor $x^2 + bx + c$?

Learn to factor trinomials $x^2 + bx + c$.

How do you find the shortest distance from a point to a line?

Learn five steps to find the shortest distance between any point and a line.

Distance formula: How do you use the distance (or length) formula to prove a geometry property?

Use the distance formula to determine if two triangles have the same area.

Substitution Part 2: How do you solve a system of equations by substitution when no equations are solved for a variable?

Substitution to solve a linear system involves subbing one equation into the other. Learn how to isolate a variable so that you can do this.

Distance Formula: How do you find the length of a line segment?

Learn how to develop and use the distance formula to find the length of a line segment. A great review if you missed the class or don't quite understand the concept yet.

Midpoint Part 1: How do you find the midpoint of a line segment?

The middle of a line segment is called the midpoint. Learn how to use the midpoint formula to find this point.

Midpoint Part 2: How do you find the equation of a median?

Use the midpoint formula to find the median of a given triangle.

Midpoint Part 3: How do you find the equation of a right bisector?

Use the skills learned in part 1 and 2 to find the right bisector of a triangle's side.

Graphing Vertex Form Part 2: How do you find the vertex form equation from the graph of a parabola?

When given a graph of a parabola use the coordinates from the vertex and another point to create the equation.

Graphing Vertex Form Part 1: $y = a(x - h)^2 + k$

When given an equation in vertex form, we can graph it using the key properties of the parabola.

Quadratic Formula Part 2: How do you solve equations using the quadratic formula?

Learn how to apply what we learned about the quadratic formula in Part 1, by working through two examples.

Quadratic Formula Part 1: How do you use the quadratic formula to solve a quadratic equation?

When a quadratic equation isn't easily factorable, the quadratic equation can help to find the roots.

Graphing Vertex Form Part 3: How do you use vertex form to solve a problem?

Use the skills you have learned in Part 1 and Part 2 to solve a problem using vertex form

Quadratic Formula Part 3: How do you use the quadratic formula to find when a projectile hits the ground?

Use the skills learned in Part 1 and 2 to solve a word problem using the quadratic formula.

EQAO: Hints for writing the Open Response questions on EQAO

Learn strategies to successfully write the 'open response' section of the EQAO.

Triangle properties Part 1: How do you show properties of triangles using analytic geometry?

Properties of any polygon can be proved using techniques of analytic geometry - learn how!

EQAO: Tips on how EQAO marks/scores your test

Learn what your EQAO mark means and how to earn the best mark.

Similar Triangles Part 2: How do you show that two triangles are similar?

Show that two triangles are similar using their angles.

Cosine Law Part 1: What is the Cosine Law and how does it work?

Learn how the cosine law works and was created.

EQAO: Tips for Writing Geometry questions Part 1.

EQAO tests usually include a geometry question. Learn how to tackle these geometry questions.

Similar Triangles: How do you use similar triangles to solve problems? Part 2

Use the concepts of similar triangles to find the area of a triangle.

Similar Triangles: How do you use similar triangles to solve problems? Part 3

If you know the area of one triangle, how can you find the area of a triangle similar to it?

Triangle Properties Part 2: How do you show the line segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length?

Prove that the line segment joining two midpoints of a triangle is parallel to the third side, and half its length.

Circle Properties Part 1: Proving the properties of circles.

How do you use geometric properties to prove properties of circles?

Cosine Law Part 3: Finding the sides in a triangle.

How do you use the Cosine Law to find sides in a triangle and then solve the rest of the triangle?

Sine Law Part 1: What is the Sine Law?

Learn what the Sine Law is and how to use it to find the sides of a triangle.

Triangle Properties: How do you prove properties of triangles?

Explore the geometric properties of an isosceles triangle.

Substitution Part 3: How do you solve a word problem with systems of equations by substitution?

Use your knowledge of substitution to solve word problems.

Circle Properties Part 2: Determining the centre of a circle.

If you are given three points on a circle, how do you determine if its center is a specific point?