



# **New Tools for Math Teachers - Web-based exercises for learning**

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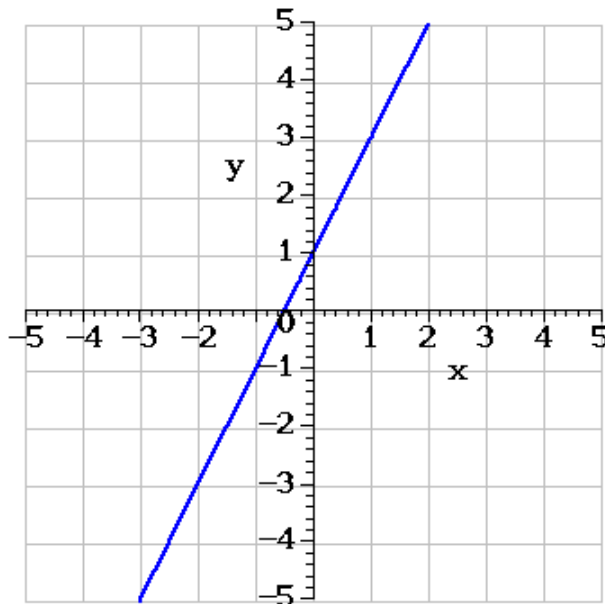
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# New tools provided by web-based practicing and assessment exercises

## Question 8: (1 point)

Determine the slope of the line from the picture.



Slope  $k =$

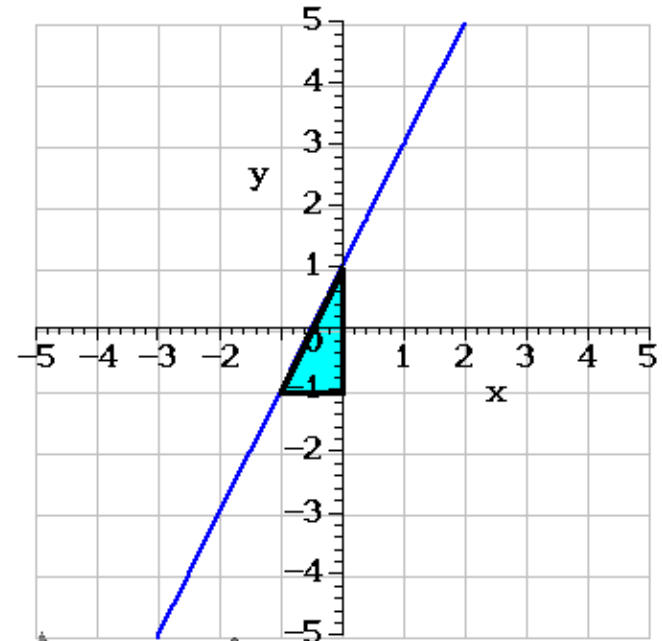


## Comment:

Slope can be determined by drawing a triangle on the line.

Slope is then the proportion of the vertical side to the horizontal side of the

$$\text{So we get, } k = \frac{-1 - 1}{-1 - 0} = \frac{-2}{-1} = 2$$



# Content

1. Introduction
2. Question banks
3. How exercises are used
4. Benefits of the system
5. Hands-on
  - Assignments
6. Gradebook
7. How to remove or add questions to an assignment

# Exercises

- Different types: multiple choice, open answer, fill in blanks, etc
- Most of the exercises allow answering by a mathematical formula and the system evaluates its correctness
- Exercises are algorithmic
- Problems include hints and complete solutions
- Grading is done automatically

# Exercises

- To assess and practice basic mathematical skills
- Illustrative graphs and images

## Question 2: (1 point)

Find the solution of the equation  $2x = 4$ .

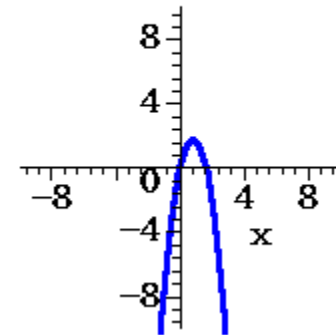
Give only the value of the solution (exact value, as a fraction, like  $5/4$ ).

This question accepts numbers or formulas.

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[Hint 1](#)

## Question:



This is the graph of the function

- $3x^2 - 3$
- $3x^2 + 5x$
- $-3x^2 + 5x$
- $-3x^2 - 3$

[Partial Grading Explained](#)

# Question Banks

- Questions are arranged according to a standard taxonomy
- Approximately 1000 questions in English
- Almost 2000 questions in Finnish

	Question Bank	Questions		In Use	Last Saved
1	<a href="#">0101 Number Concepts</a>	23	<a href="#">delete</a>	no	25.8.2008
2	<a href="#">010201 Operations</a>	64	<a href="#">delete</a>	no	25.8.2008
3	<a href="#">010202 Fractions</a>	87	<a href="#">delete</a>	no	25.8.2008
4	<a href="#">010203 Decimals</a>	4	<a href="#">delete</a>	no	25.8.2008
5	<a href="#">010205 Exponents and Roots</a>	37	<a href="#">delete</a>	no	25.8.2008
6	<a href="#">01020110 Absolute Value</a>	14	<a href="#">delete</a>	no	17.8.2008
7	<a href="#">01020305 Percents</a>	64	<a href="#">delete</a>	no	17.8.2008
8	<a href="#">01020205 Ratio and Proportion</a>	37	<a href="#">delete</a>	no	18.8.2008
9	<a href="#">0202 Set Theory</a>	15	<a href="#">delete</a>	no	25.8.2008
10	<a href="#">030102 Algebraic Manipulation</a>	32	<a href="#">delete</a>	no	18.8.2008
11	<a href="#">030103 Functions</a>	48	<a href="#">delete</a>	no	4.9.2008
12	<a href="#">030104 Equations</a>	69	<a href="#">delete</a>	no	4.9.2008
13	<a href="#">03010407 Equation Systems</a>	12	<a href="#">delete</a>	no	18.8.2008
14	<a href="#">030105 Inequalities</a>	30	<a href="#">delete</a>	no	4.9.2008
15	<a href="#">030203 Vectors</a>	43	<a href="#">delete</a>	no	18.8.2008
16	<a href="#">0502 Plane Geometry</a>	86	<a href="#">delete</a>	no	18.8.2008
17	<a href="#">0503 Solid Geometry</a>	31	<a href="#">delete</a>	no	18.8.2008
18	<a href="#">0504 Analytic Geometry</a>	59	<a href="#">delete</a>	no	18.8.2008
19	<a href="#">0508 Trigonometry</a>	31	<a href="#">delete</a>	no	25.8.2008
20	<a href="#">060102 Limits</a>	10	<a href="#">delete</a>	no	18.8.2008
21	<a href="#">060104 Differentiation</a>	59	<a href="#">delete</a>	no	4.9.2008
22	<a href="#">060105 Integration</a>	120	<a href="#">delete</a>	no	19.8.2008
23	<a href="#">090401 Elementary Probability</a>	55	<a href="#">delete</a>	no	18.8.2008
24	<a href="#">090402 Distributions</a>	40	<a href="#">delete</a>	no	18.8.2008

# How to use

- Homework
- Weekly tests
- Diagnostic e-tests
- Distance learning
- Virtual classes
- Allows individual practicing at own time, place, and pace

# Some benefits of the system

- Easy to use, only web browser is needed
- Grading is done automatically by the computer which saves time of the instructors
- Immediate feedback for students
- Students gain understanding of their learning process and can concentrate on the weak points and practice more
- Diagnostic testing helps to design the teaching, for example, dividing students into groups according to their individual learning needs



Hands on

[mapleta.webalt.com](http://mapleta.webalt.com)

- User name: workshop
- Password: e-contents
- Log on to: FELLES-NTNU-NO