

COURSE TITLE

Water Industry Mathematics Basics

COURSE DURATION

1 hour

OVERVIEW

Water operators must master basic math skills in order to perform the more advanced calculations required day-to-day on the job. This course covers basic mathematical notation, methods, and calculations. Included in the course are powers and scientific notation, dimensional analysis, rounding and estimation, solving for the unknown value, ratios and proportions, percent, averages, linear area and volume measurements, and conversions.

This training course has 10 learning modules with a 10-question exam.

PREREQUISITES

No prior knowledge is required.

BEHAVIORAL OBJECTIVES

After successfully completing this course, you will be able to:

- define key mathematical concepts such as addition, subtraction, multiplication, and division
- describe the basic rules for powers, roots, and scientific notation
- recall the rules for dimensional analysis, rounding, estimating, ratios, proportions, and conversions
- solve for the unknown value
- calculate percentages, averages, and linear, area, and volume measurements
- apply key mathematical concepts to basic word problems

COURSE OUTLINE

- Basic Operations - 10 minutes
- Powers, Square Roots, and Scientific Notation - 5 minutes
- Dimensional Analysis - 5 minutes
- Rounding and Estimating - 5 minutes
- Solving for the Unknown Value - 5 minutes
- Ratios and Proportions - 5 minutes
- Percentages - 5 minutes
- Averages - 5 minutes
- Linear, Area, and Volume Measurements - 5 minutes
- Conversions - 10 minutes

AVAILABILITY

This course is offered online and is available 24 hours a day, 7 days a week, 365 days a year.

TRAINING METHODOLOGY & EVALUATION

This course is self-paced online training. Review exercises and case studies reinforce the content, and students are evaluated with a multiple-choice exam. Upon completion, students are prompted to submit a course evaluation.

RESOURCES

Syberad. "Averages." Syberad Limited. No last date modified. Accessed December 2, 2015.
www.syberad.com/calculator/WebHelp/charts/statistics/definitions/averages/averages.htm

Ducksters. "Kidsmath." Ducksters. Last updated December 2015. Accessed December 2, 2015.
www.ducksters.com/kidsmath/mathematical_laws.php

Work for Water. "Resource for Water Professionals." Work for Water. No last date modified. Accessed December 2, 2015. workforwater.org/resourceforwaterprofessionals/page_int.aspx

Sacramento State Office of Water Programs. "CSUS Education Glossary." Sacramento State Office of Water Programs. Last modified 2015. Accessed December 2, 2015. www.owp.csus.edu/glossary/interconnector.php

OpenStax. "Ratios and Rates: Proportions," OpenStax. Last modified 2015. Accessed December 2, 2015. cnx.org/contents/2278db9b-b775-4d02-a164-0a4be99cb8e6@2/Ratios_and_Rates:_Proportions

Math Goodies. "Circumference of a Circle." Math Goodies. Last modified 2015. Accessed December 2, 2015. www.mathgoodies.com/lessons/vol2/circumference.html

Sonin, Ain A. The Physical Basis of Dimensional Analysis. 2nd Edition. Cambridge, MA. MIT Department of Mechanical Engineering, 2001.