

## CALCULUS MPT MATERIALS For Placement into Math 108, 116

Review Material	Location
<p><b>1. Web site</b></p> <p>General MPT information.</p> <p>Sample questions and answers that highlight the most important topic areas covered in the Math Placement Test.</p> <p>Links to other sites with review material.</p>	<p><a href="http://www.capilano.ca/math/Math-Placement-Test-(MPT)/">http://www.capilano.ca/math/Math-Placement-Test-(MPT)/</a></p> <p><a href="http://www.capilano.ca/math/Math-Placement-Test-(MPT)/#what-can-prepare">http://www.capilano.ca/math/Math-Placement-Test-(MPT)/#what-can-prepare</a></p>
<p><b>2. Texts</b></p> <p><i>Precalculus: Mathematics for Calculus</i> by J. Stewart, L. Redlin, S. Watson.</p> <p><i>Precalculus</i> by M. Sullivan.</p> <p><i>Algebra and Trigonometry With Applications</i> by M. Munem and D. Foulis. This text accompanies <i>The Video Tutor</i> and <i>The Video Tutor Guide</i> described below under Audio-Visual resources.</p>	<p>On reserve in Library under MPT. On reserve in Math Learning Centre (BR 289).</p> <p>On Reserve in Library under MPT.</p> <p>Library A/V Department (QA 154.2 M858 1992)</p> <p>On reserve in Math Learning Centre (BR 289).</p>
<p><b>3. Practice Exam Booklets</b></p> <p>Sample Math 105 exams with solutions</p>	<p>Capilano University Bookstore</p>
<p><b>4. Audio-Visual (and accompanying resources)</b></p> <p><i>The Video Tutor</i> (DVD) by Ted Bentley. The videos in this series cover the entire content of a precalculus course.</p> <p><i>The Video Tutor Guide</i> by Ted Bentley. This is a companion workbook for <i>The Video Tutor</i>. It contains examples for students to work through to accompany each video segment of <i>The Video Tutor</i>.</p>	<p>Library A/V Department (QA 154.2 M858 1992)</p> <p>On reserve in Math Learning Centre (BR 289).</p> <p>Library A/V Department (QA 154.2 M858 1992)</p> <p>On reserve in Math Learning Centre (BR 289).</p> <p>Capilano University Bookstore</p>

On the next page you will find a small selection of the online sample questions to help demonstrate the scope and level of difficulty of the Calculus Math Placement Test.

# CALCULUS MPT SAMPLE QUESTIONS

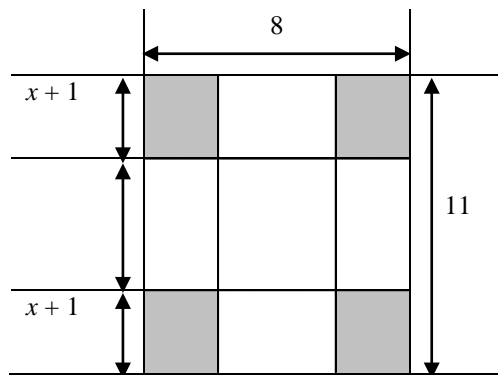
**Important Note:** Calculators are not permitted when writing the Math Placement Test. In order to fully benefit from these practice problems, you should solve them without the aid of a calculator.

**Algebra** Polynomials; factoring; rational expressions; radicals; exponents; applications.

Rationalize the numerator and simplify:  $\frac{\sqrt{2+3(x+h)} - \sqrt{2+3x}}{h}$

Simplify:  $\frac{x^{-2} - y^{-2}}{x^{-1} + y^{-1}}$

The shaded corner squares are cut from the rectangle shown and the remaining piece is folded along the dashed lines to create an open top box. Express the volume of the box in terms of  $x$ .



**Equations and Inequalities** Solving equations and inequalities for linear, quadratic, and factored forms; equation of a line; applications.

Solve for  $x$ :  $\frac{5x+2}{2x-1} \leq 4$

In slope-intercept form, find the equation of the line which passes through the point  $(2, 3)$  and is perpendicular to the line given by  $y = 5x + 1$ .

**Functions** Function definition; domain; range; geometric interpretation; composition; inverse functions; basic building-block functions; piecewise-defined functions; function models.

Find the domain of  $f(x) = \sqrt{\frac{2x+1}{x+3}}$ .

Find the inverse function of the function  $f(x) = 4 + \sqrt{7-x}$ .

**Exponential and Logarithmic Functions** Definitions; properties; applications.

Solve for  $x$ :  $\log_b(x+1) + \log_b(x) = \log_b(3x+1)$

Solve for  $x$ :  $e^x + 3e^{-x} = 4$

**Trigonometry** Degree and radian angular measure: right triangle trigonometry; definition of the trigonometric functions of any angle; graphs; basic identities; applications.

For the diagrammed angle

$$\cos(\theta) =$$

$$\sin(\theta) =$$

$$\tan(\theta) =$$

Factor and simplify:  $\sin^3(x)\cos(x) + \sin(x)\cos^3(x)$

Solve:  $\sin(x) = \frac{1}{2}$ ,  $0 \leq x \leq 2\pi$

