



Useful formulas to know for UMU Mathematics Placement Exam - 2022

Point slope form of a linear equation: $y - y_1 = m(x - x_1)$

Slope intercept $y = mx + b$

Perimeter of a Rectangle $P = 2L + 2W$

Pythagorean Theorem $a^2 + b^2 = c^2$

Definitions of logarithmic and exponential functions $\log_b y = x \Leftrightarrow b^x = y$

Difference Quotient $\frac{f(x+h)-f(x)}{h}$

Trig Function relationship to the sides of a right triangle:

$$\text{sine} = \frac{\text{opposite}}{\text{hypotenuse}} \quad \text{cosine} = \frac{\text{adjacent}}{\text{hypotenuse}} \quad \text{tangent} = \frac{\text{opposite}}{\text{adjacent}}$$

Rules of Exponents:

$$a^m a^n = a^{m+n} \quad \frac{a^m}{a^n} = a^{m-n} \quad (ab)^m = a^m b^m \quad (a^m)^n = a^{mn} \quad a^{-m} = \frac{1}{a^m}$$

Advanced Properties of Logarithms:

$$\log_b MN = \log_b M + \log_b N \quad \log_b \frac{M}{N} = \log_b M - \log_b N \quad \log_b M^k = k \log_b M$$