

## MTH 127 OVERALL STUDENT LEARNING OUTCOMES (SLOs) RESULTS

MPO	Specific Skill / Math Topic	<i>I know how to do this.</i>	<i>I have some idea how to do this but need more practice.</i>	<i>I do not know how to do this.</i>
MPO 1.1 evaluate and graph (using the first-derivative and second-derivative tests as appropriate) polynomial, piecewise, composite, exponential, logarithmic, and multi-variable functions	Evaluate polynomial functions.	T1: 17 = 47%	T1: 15 = 42%	T1: 4 = 11%
	Evaluate piecewise functions.	T1: 23 = 64%	T1: 5 = 14%	T1: 8 = 22%
	Graph piecewise functions.	T1: 10 = 34%	T1: 9 = 31%	T1: 10 = 34%
	Graph polynomial functions.	T2: 21 = 68% T3: 7 = 23%	T2: 8 = 26% T3: 17 = 57%	T2: 2 = 6% T3: 6 = 20%
	Evaluate multi-variable functions.	T6: 14 = 70% FE: 20 = 100%	T6: 6 = 30% FE: 0 = 0%	T6: 0 = 0% FE: 0 = 0%
	Determine relative minima and relative maxima of multivariable functions.	T6: 4 = 20%	T6: 12 = 60%	T6: 4 = 20%

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MPO 1.2 solve linear, quadratic, exponential, and logarithmic equations	Solve quadratic equations.	T1: 29 = 81% FE: 15 = 75%	T1: 5 = 14% FE: 0 = 0%	T1: 1 = 3% FE: 5 = 25%
	Solve exponential equations.	T4: 15 = 54% FE: 20 = 100%	T4: 11 = 39% FE: 0 = 0%	T4: 2 = 7% FE: 0 = 0%
	Solve logarithmic equations.	T4: 10 = 36% FE: 14 = 70%	T4: 12 = 43% FE: 3 = 15%	T4: 6 = 22% FE: 3 = 15%
MPO 1.3 determine limits, continuity, and differentiability of given functions at specified values	Determine limits.	T2: 25 = 81%	T2: 6 = 19%	T2: 0 = 0%
	Determine continuity and/or differentiability of a function at a specified value.	T2: 18 = 58% FE: 7 = 35%	T2: 8 = 26% FE: 5 = 25%	T2: 5 = 16% FE: 8 = 40%
MPO 1.4 determine a derivative of a function by using limits and difference quotients	Use the definition of a derivative to compute a derivative.	T2: 12 = 52% FE: 0 = 0%	T2: 4 = 17% FE: 0 = 0%	T2: 7 = 30% FE: 9 = 100%

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MPO 1.5 calculate first, second, or partial derivatives of polynomial, rational, exponential, and logarithmic functions by using rules of differentiation including the product, quotient, and chain rules and implicit and logarithmic differentiation	Calculate first and second derivatives.	T2: 13 = 42%	T2: 17 = 55%	T2: 1 = 3%
	Calculate derivatives using the product rule.	T3: 24 = 80% T4: 17 = 61% FE: 7 = 35%	T3: 3 = 10% T4: 9 = 32% FE: 5 = 25%	T3: 3 = 10% T4: 2 = 7% FE: 8 = 40%
	Calculate derivatives using the quotient rule.	T3: 24 = 80% T4: 17 = 61% FE: 9 = 45%	T3: 2 = 7% T4: 9 = 32% FE: 5 = 25%	T3: 4 = 13% T4: 2 = 7% FE: 6 = 30%
	Calculate derivatives using the chain rule.	T3: 10 = 48% T4: 22 = 79% FE: 13 = 65%	T3: 5 = 24% T4: 4 = 14% FE: 5 = 25%	T3: 6 = 29% T4: 2 = 7% FE: 2 = 10%
	Calculate derivatives of exponential functions.	T4: 19 = 68%	T4: 7 = 25%	T4: 2 = 7%
	Calculate derivatives of logarithmic functions.	T4: 5 = 18%	T4: 14 = 50%	T4: 9 = 32%
	Calculate derivatives using implicit differentiation.	T3: 18 = 62%	T3: 4 = 14%	T3: 7 = 24%
	Calculate derivatives using logarithmic differentiation.	T4: 12 = 43% FE: 8 = 40%	T4: 7 = 25% FE: 6 = 30%	T4: 9 = 32% FE: 6 = 30%
	Calculate partial derivatives.	T6: 6 = 30% FE: 11 = 55%	T4: 13 = 65% FE: 4 = 20%	T4: 1 = 5% FE: 5 = 25%

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MPO 1.6 calculate Riemann sums to estimate definite integrals	Calculate Riemann sums to estimate definite integrals.	T5: 19 = 83%	T5: 4 = 17%	T5: 0 = 0%
MPO 1.7 apply the Fundamental Theorem of Calculus to calculate integrals of single variable functions and determine the areas between given curves	Integrate functions.	T5: 22 = 96% FE: 3 = 15%	T5: 1 = 4% FE: 10 = 50%	T5: 0 = 0% FE: 7 = 35%
	Calculate definite integrals by applying the Fundamental Theorem of Calculus.	T5: 21 = 91% FE: 11 = 55%	T5: 2 = 9% FE: 5 = 25%	T5: 0 = 0% FE: 4 = 20%
	Determine the area between given curves.	T6: 7 = 35%	T6: 13 = 65%	T6: 0 = 0%
MPO 1.8 determine a specified volume of revolution	Determine a specified volume of revolution.	T6: 5 = 63%	Actual: 2 = 25%	Actual: 1 = 13%
MPO 2.1 solve compound interest, present value, and future value problems	Solve compound interest problems.	T1: 24 = 67% T5: 21 = 91% FE: 10 = 50%	T1: 9 = 25% T5: 2 = 9% FE: 4 = 20%	T1: 3 = 8% T5: 0 = 0% FE: 6 = 30%
	Solve present value problems.	T5: 20 = 87%	T5: 3 = 14%	T5: 0 = 0%
	Solve continuous stream future value problems.	T6: 3 = 25%	T6: 6 = 50%	T6: 3 = 25%

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MPO 2.2 solve marginal cost, marginal profit, and marginal revenue problems by using differentiation and integration as necessary	Solve marginal cost, marginal profit, and marginal revenue problems by using differentiation and integration as necessary.	FE: 14 = 70%	FE: 6 = 30%	FE: 0 = 0%
MPO 2.3 solve rate-of-change and related rates problems	Solve rate-of-change problems.	T2: 16 = 52%	T2: 11 = 35%	T2: 4 = 13%
	Solve related rates problems.	T3: 1 = 3% FE: 7 = 35%	T3: 13 = 43% FE: 2 = 10%	T3: 16 = 53% FE: 11 = 55%
MPO 2.4 solve optimization problems (in geometry, finance, inventory control, etc.) including those involving functions of several variables	Solve optimization problems.	T3: 17 = 57% T6: 7 = 54% FE: 1 = 50%	T3: 9 = 30% T6: 2 = 15% FE: 0 = 0%	T3: 4 = 13% T6: 4 = 31% FE: 1 = 50%
	Solve economic order quantity (EOQ) – i.e., inventory control – problems.	T3: 20 = 67%	T3: 4 = 13%	T3: 6 = 20%
MPO 2.5 solve growth and decay problems (in finance, biology, chemistry, physics, etc.)	Solve growth and decay problems.	T5: 23 = 100%	T5: 0 = 0%	T5: 0 = 0%
MPO 2.6 solve elasticity of demand problems	Solve elasticity of demand problems.	T5:21 = 91% FE: 10 = 50%	T5:1 = 4% FE: 4 = 20%	T5: 1 = 4% FE: 6 = 30%

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MPO 3.1 write and explain solutions to application problems including related rates, optimization, inventory control, growth and decay, and elasticity of demand problems	NOT ASSESSED IN FALL 2010			
MPO 4.1 use the GRAPH feature to display polynomial, piecewise, composite, exponential, logarithmic, and multi-variable functions	NOT ASSESSED IN FALL 2010			
MPO 4.2 use the TABLE feature to determine account balances for given compound interest problems	NOT ASSESSED IN FALL 2010			