Learning Targets

Record your marks, in the order you earn them, in the blanks next to each target.

Proof Methods *To earn a C, B, or A, you must master 5, 6, or 7 of these.*

P.1: I can write a correct direct proof.

P.2: I can write a correct proof using the contrapositive or other logical equivalences.

P.3: I can write a correct proof by contradiction.

P.4: I can correctly use cases in a proof.

P.5: I can write a correct proof using mathematical induction.

P.6: I can correctly prove a biconditional statement.

P.7: I can clearly and correctly disprove a statement using a counterexample.

Clarity and Precision

C.1: I clearly and precisely define all variables used in my work.

C.2: I can create a clearly stated conjecture based on evidence.

C.3: I attend to details (including all instructions) in my work.

Mathematical Strategies

M.1: I can use appropriate mathematical ideas from previous classes (such as Algebra and Calculus) to help me solve problems.

M.2: I can create a concrete and relevant example that illustrates the meaning of a definition or theorem.

M.3: I can fail and learn from it.

M.4: I can read and critique the mathematical work of others, identify errors and common misconceptions, and provide helpful feedback.

Logical Equivalences, Statements, and Predicates

L.1: I can identify, create, use, and negate statements and compound statements.

L.2: I can identify, create, use, and negate conditional statements, including assumptions, and conclusions.

L.3: I can state, prove, and use logical equivalences.

L.4: I can identify, create, use, and negate quantifiers.

L.5: I can identify, create, and use predicates and their truth sets.

Sets

S.1: I can write sets using set builder notation and interpret sets written this way.

S.2: I can define, use, and explain the meaning of set operations and relations.

S.3: I can prove set relations using element-chasing proofs and set algebra.

Functions

F.1: I can define, use, and explain the meanings of properties of functions (including domain, codomain, and range).

F.2: I can define, use, and prove that functions are injective, surjective, and bijective.

F.3: I can define, use, and prove facts about equivalence relations and equivalence classes.

Numbers

N.1: I can define and use properties of numbers, including odd/even, divisibility, rationals, and the division algorithm.

N.2: I can define and use congruences and modular arithmetic fluently.

How to keep track of your progress

Record your marks from each assessment next to each learning target. Include reassessments too. For example:

P M E P E L.1: I can identify, create, and use statements.

Your most recent mark is E. Your second most recent is P. The rest are P, M, and E. Take a look at the 3 questions under "How do I earn a grade?" You can answer "Yes" to two of them, so you've mastered L.1!

Use this grid to keep track of your overall progress. Check off boxes **from left to right** as you accomplish them. When you've checked off **all boxes in a column**, you've earned that grade!

	D	**C**	**B**	**A**
Learning Targets mastered (Look at most recent, 2nd most recent, at least half of the rest)	❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑	❑ ❑ ❑ ○ Are any 5 Proof Methods?	❑ ❑ ❑ ○ Are any 6 Proof Methods?	❑ ❑ ❑ ○ Are any 7 Proof Methods?
Preview Activities completed (with thoughtful effort)	❑ ❑	❑ ❑ ❑ ❑ ❑ ❑	❑ ❑ ❑ ❑ ❑ ❑	❑ ❑ ❑ ❑ ❑ ❑
Professionally communicated proofs (See Style Guide for details)		❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑	❑ ❑	❑ ❑
Lead Authorships (Portfolios & Projects)		❑ ❑ ❑ ❑	❑ ❑	❑ ❑

Notes and reminders:

- *You have mastered a target when you can say "yes!" to any 2 of these 3 questions: Is your most recent mark on this target M/E? Is your second most recent mark on this target M/E? Are at least half of all of your other marks on this target M and/or E?*
- *Your answers to these questions may change as you complete assignments. It is possible to lose mastery. Watch carefully!*
- *Each grade category builds on the lower ones. For example, there are 8 boxes in the "Professionally communicated proofs" row to earn a C. There are 2* ***more*** *boxes to earn a B, because you need 10 total (8 for a C + 2 more for a B).*

If you are confused or worried about your grade or our grading system, see me immediately!

I'll be glad to discuss it with you. *Talk to me as soon as you have questions – don't wait!*