

42 METHODS OF MATHEMATICAL PROOF

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If the proof of a theorem is not immediately apparent, it may be because you are trying the wrong approach. Below are some effective methods of proof that may aim you in the right direction.

- (1) Proof by Obviousness: "The proof is so clear that it need not be mentioned."
- (2) Proof by General Agreement: "All in Favor? . . ."
- (3) Proof by Imagination: "Well, We'll pretend its true."
- (4) Proof by Convenience: "It would be very nice if it were true, so . . ."
- (5) Proof by Necessity: "It had better be true or the whole structure of mathematics would crumble to the ground."
- (6) Proof by Plausibility: "It sounds good so it must be true."
- (7) Proof by Intimidation: "Don't be stupid, of course it's true."
- (8) Proof by Lack of Sufficient Time: "Because of the time constraint, I'll leave the proof to you."
- (9) Proof by Postponement: "The proof for this is so long and arduous, so it is given in the appendix."
- (10) Proof by Accident: "Hey, what have we here?"
- (11) Proof by Insignificance: "Who really cares anyway?"
- (12) Proof by Mumbo-Jumbo: "For any $\varepsilon > 0$ there exists a corresponding $\delta > 0$ such that $|f(x) - L| < \varepsilon$ whenever $|x - a| < \delta$."
- (13) Proof by Profanity: (example omitted)
- (14) Proof by Definition: "We'll define it to be true."
- (15) Proof by Tautology: "It's true because it's true."
- (16) Proof by Plagiarism: "As we see on page 238. . ."
- (17) Proof by Lost Reference: "I know I saw this somewhere. . ."
- (18) Proof by Calculus: "This proof requires calculus, so we'll skip it."
- (19) Proof by Terror: When intimidation fails. . .
- (20) Proof by Lack of Interest: "Does anyone really want to see this?"
- (21) Proof by Illegibility: "% a ð Þ þæ"
- (22) Proof by Logic: "If it is on the problem sheet, then it must be true."
- (23) Proof by Majority Rule: Only to be used if General Agreement is impossible.
- (24) Proof by Clever Variable Choice: "Let A be the number such that this proof works."
- (25) Proof by Tessellation: "This proof is just the same as the last."
- (26) Proof by Divine Word: "And the Lord said, 'Let it be true,' and it came to pass."
- (27) Proof by Stubbornness: "I don't care what you say! It is true!"
- (28) Proof by Simplification: "This proof reduces to the statement, $1 + 1 = 2$."
- (29) Proof by Hasty Generalization: "Well, it works for 17, so it works for all reals."
- (30) Proof by Deception: "Now everyone turn their backs. . ."
- (31) Proof by Supplication: "Oh please, let it be true."
- (32) Proof by Poor Analogy: "Well, it's just like. . ."
- (33) Proof by Avoidance: Limit of Proof by Postponement as t approaches infinity.
- (34) Proof by Design: "If it's not true in today's math, invent a new system in which it is."
- (35) Proof by Intuition: "I just have this gut feeling. . ."
- (36) Proof by Authority: "Well, Grothendieck says it's true, so it must be."
- (37) Proof by Vigorous Assertion: "And I REALLY MEAN THAT!"
- (38) Proof by A.F.K.T. Theorem: "Any Fool Knows That!"
- (39) Proof by vigorous handwaving: Works well in a classroom.
- (40) Proof by seduction: "Convince yourself that this is true!"
- (41) Proof by accumulated evidence: "Long and diligent search has not revealed a counterexample."
- (42) Proof by Divine Intervention: "Then a miracle occurs. . ."