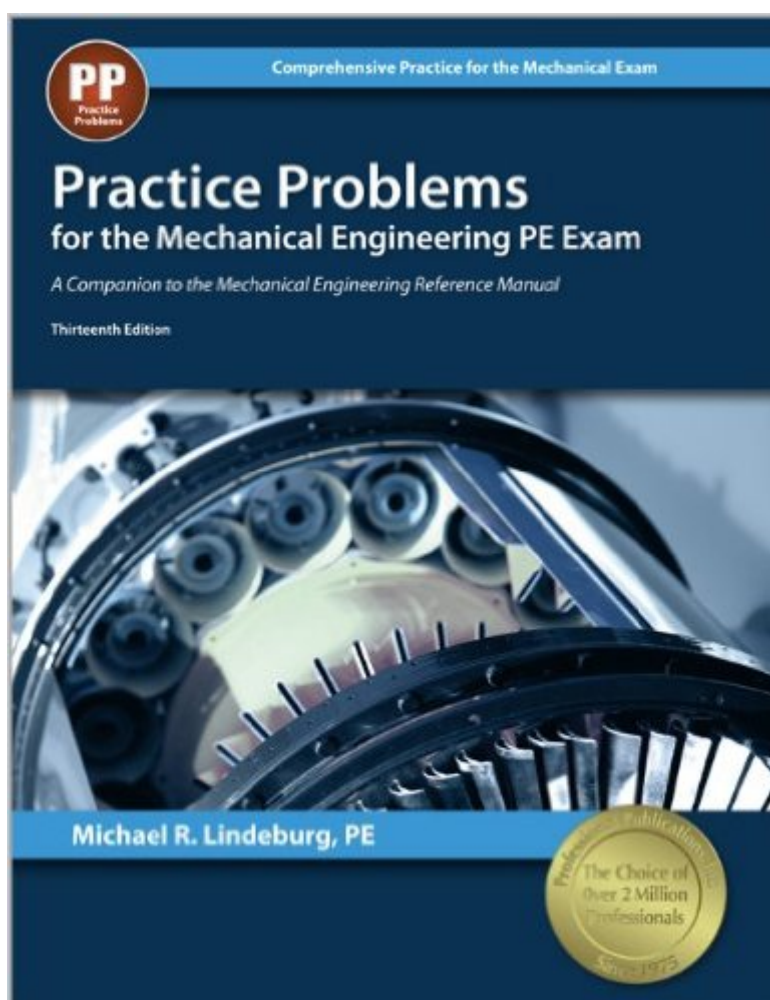


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# Practice Problems For The Mechanical Engineering PE Exam, 13th Ed (Comprehensive Practice For The Mechanical Pe Exam)



## Synopsis

Comprehensive Practice for the Mechanical PE Exam Practice Problems for the Mechanical Engineering PE Exam contains over 850 problems designed to reinforce your knowledge of the topics presented in the Mechanical Engineering Reference Manual. Over 300 new stand-alone, multiple-choice problems are designed to be solved in six-minute or less. These demonstrate the format of the NCEES Mechanical PE exam, and focus on individual engineering concepts. The remaining 550 problems are longer and more complex, challenging your skills in identifying and applying related engineering concepts. "A 6-minute zinger illustrates the exam format. The harder problems teach you engineering." -Michael R. Lindeburg, PE Solutions are clearly written, complete, and easy to follow. U.S. customary and SI units are equally supported, and units are meticulously identified and carried through in all calculations. Frequent references to figures, tables, equations, and appendices in the Mechanical Engineering Reference Manual will direct you to relevant support material. Prepare for the Mechanical PE Exam by Solving Problems "The More Problems, the Better 851 practice problems covering the topics on the Mechanical PE exam Complete step-by-step solutions SI and U.S. Customary units used throughout Chapters that correspond to those in the Mechanical Engineering Reference Manual What's New in This Edition 6 chapters with new material 47 chapters with revisions to existing material 301 new stand-alone, multiple choice exam-like problems 74 updated problems Topics Covered Dynamics and Vibrations: Kinematics; Kinetics; Power Transmission Systems; Vibrating Systems Materials: Engineering Materials Properties and Testing; Thermal Treatment of Metals Fluids: Fluid Properties; Fluid Statics; Fluid Flow Parameters; Fluid Dynamics; Hydraulic Machines Power Cycles: Vapor, Combustion, and Nuclear Power Cycles; Refrigeration and Gas Compression Cycles HVAC: Psychrometrics; Fans, Ductwork, and Ventilation; Heating and Cooling Loads; Air Conditioning Systems Heat Transfer: Natural Convection; Evaporation; Condensation; Forced Convection; Radiation Machine Design: Basic and Advanced Machine Design; Pressure Vessels Thermodynamics: Inorganic Chemistry; Fuels and Combustion; Properties of Substances Control Systems: Modeling and Analysis of Engineering Systems Plant Engineering: Manufacturing Processes; Instrumentation and Measurements; Materials Handling and Processing; Fire Protection Systems; Environmental Pollutants and Remediation; Hazardous Material Storage and Disposal Fundamentals: Math Review; Probability; Statics; Engineering Economic Analysis Law and Ethics: Engineering Law; Ethics

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## Customer Reviews

This may be the only good Practice Problem Book, so take that for what it's worth. Also, haven't taken the PE exam yet. This book is very frustrating, because many of the problems are poorly-worded or poorly diagrammed, such that the answer isn't obvious until you turn to the solution and say "WHAT?". Some examples (FAIR USE-illustrative) Problem 48-8. Asks you to give the term for a material whose "properties are invariant with direction", which describes an isotropic material. Except that "Isotropic" isn't one of the answers given. So you turn to the solution, which says "An Anisotropic material looks and behaves the same in every direction." Which is exactly opposite of what an anisotropic material is. Problem 51-6 has you finding the thermally-induced tensile stress in a steel bolt that's holding a steel flange to an aluminum flange. The thermal growth of the aluminum is greater than the steel, which puts the bolt into tension. The problem statement gives you the CTE for steel and aluminum, but they're the same, which means that there's no thermally induced stress at all. So you turn to the solution and find that you can find a nonzero thermally induced stress if you use the correct CTE for aluminum. Problem 51-10 wants you to look at a beam in compression, and then find the normal stress out of the beam, based upon the compressive axial load and an applied shear at the section of interest. Basically, it's asking you to combine the shear in a plane with a stress that's normal to that plane, which is physically impossible. So you turn to the solution and it seems that whoever solved the problem didn't read it because he arbitrarily decided that the stress was in plane. Which is physically meaningful, but not what was put explicitly into the problem statement. So if you are willing to go to their classes and get

the errata (I hope there's errata!), or print errata off their website, or just hope that you find all the errors this is a great book. If this is the only practice problems book, then it's adequate.

This is as massive as the MERM itself. It has probably around a thousand example problems in it with worked out solutions. I recommend starting here. I spent a month and a half reading the MERM cover to cover and that was a waste of time. In one eye and out the other. Get the MERM, this and the Quick Reference and just start doing problems. I recommend spending about an hour on each chapter of problems and using the MERM as your reference on how to solve them. There are some chapters later on you'll know you can skip or skim (Advanced Alternative Energy, Nuclear Power Plants, almost the entire Plant Engineering section, Ethics). Use the NEECS test guidance (its in the front of the MERM) to determine what you shouldn't waste time studying. After you've done that take the NEECS sample breadth exam. Then go back and do every single problem in your depth area, then take the NEECS sample depth exam in your area. At this point you should know about where you stand and what you need to keep studying. All of that above took me about 100 hours to do. I've currently got almost 200 hours of studying under my belt but about 60 of them were mostly wasted hours reading the MERM. I started to get burned out so I've moved on to the 6 minute solution books despite the poor reviews and really like them. I'm estimating I'll end up with a little less than 240 hours of studying under my belt by the time the exam hits in a few weeks (I keep a daily log for tracking and motivation purposes). If that's not enough then nothing probably will be. My only complaint is that there are not enough exam level questions in here, these are either really basic or really hard with relatively few in between. I'm basing that off the NEECS sample exam challenge level. I hope that is representative because then I feel I may have a decent chance of passing. I don't plan on doing this more than once!

Pretty awesome actually. It's expensive, yes. VERY expensive. But, it is almost a one-stop-shop item for passing the PE exam. It's also a great guide to get you started on pretty much any engineering design problem you'll encounter in your career.

This is a must-have resource for the Mechanical PE test. The problems in this book are much lengthier than the real test problems, so it forces you to study harder to figure them out. It makes the test seem easy in comparison to your studies. There were only two questions on my exam that weren't covered in this book.

Going through this book from one end to the other was great preparation for the exam. Plus, having the sample problems in front of me bailed me out in a few instances. Get this and the big reference manual textbook... its worth it.

The problems in this book were much more difficult than on the actual PE exam. However, I found it did a good job of covering every topic and, for the most part, did a good job at explaining the problem solutions.

Overall, this is a helpful set of problems with which to prepare for the PE Mechanical exam. However, it is intended as a companion to the Mechanical Engineering Reference manual from the same company but there are many inconsistencies between the two products. In particular, the section on gear drives is very poorly written and proofed. There are many terms used in the problems that don't appear in the reference manual and some formulas used in solutions that aren't mentioned anywhere in the manual. Additionally, there are some outright errors in terminology that make some of the questions misleading. Take it with a grain of salt and don't get too hung up on one question; check the solution, make the appropriate notes and move on. REVISED: The further you get into this book, the more frequent the errors become. It's gotten so bad that I stopped reporting them to PPI (the publisher).

This product was comprehensive, but limited practice problems. You should purchase the sample problems companion to ensure a well rounded study experience. Passed the 1st time using only these two reference materials.

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