

## The 10 Tools & Techniques of Estimating Cost for the PMP Exam

T/T	Brief definition	When to use it	Trick to remember
Expert judgment	Someone who knows a lot more than you do about estimating a cost	When you can! Expert judgment is a useful tool in a variety of situation,	When in doubt, ask someone who knows more than you!
Analogous estimating	Using values from a similar project to estimate costs for your current project	Know a similar project and need a rough estimate in a short amount of time? Use it!	Find analogies to similar projects, but remember that its use is limited due to the nature of projects -- they create something new and unique, so analogy can only go so far.
Parametric estimating	Using similar data as you might use in analogous estimating but spending more time to use current variables and analyze	Do you have some analogous data but have more time? Use it!	Historical data + other variables + statistical analysis = parametric
Bottom-Up Estimating	Estimating each work package, then rolling up to a summary level	It's time consuming, but use it when you need a more precise estimate.	Estimating every work package in excruciating detail
Three-Point Estimation	Using formulas to improve accuracy	When you have Pessimistic (P), Most Likely (L), and Optimistic estimates (O)	Know the formulas! (Sorry, no other way, folks!) Triangular = $(P+L+O)/3$ PERT Beta = $(P+4L+O)/6$
Reserve Analysis	Contingency reserves (AKA allowances) that account for the "known-unknown" risks & management reserves that account for the "unknown-unknown" risks	Throughout the project -- contingency reserves may be used or decreased/remove as the project progresses. If management reserves are used, then they need to be added to the cost baseline	Contingency reserves are for the "known-unknowns" that you ID in your risk register. Management reserves are for when the unexpected happens, and management can approve or deny use. Both make up reserve analysis!
Cost of Quality (COQ)	Assumptions used to develop cost estimates	If needed, depending on the focus on quality within your project	This tool is described in more detail in the Quality Management Plan -- just know that it can impact cost!
Project Management Software	Software used to do simulations and make estimates	When available and you need to make complicated calculations easier	Use it if you have complex calculations and it is available to you
Vendor Bid Analysis	Analyzing & using bids from vendors to determine what is an appropriate cost, especially if you don't have much information	Don't know what something will cost, and neither does your team? Collect bids from vendors, then analyze to get a range.	Don't get this one confused with a Procurement Process -- Vendor Bid Analysis allows you to develop a cost estimate if you don't have your own expertise.
Group Decision-Making Techniques	Getting a group together that is close to the work develop a cost estimate	In order to gain commitment and when you want accuracy	Group decision-making is often a tool & technique. Increase buy-in by getting folks involved.