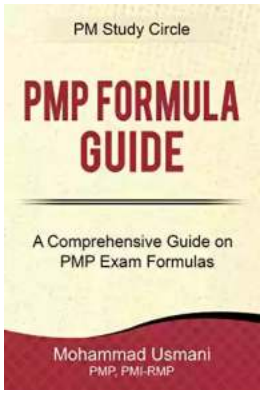
Comprehensive Guide on PMP Exam Formulas

Name	Formula	Interpretation
Number of communications channels	**n * (n-1) / 2** where n is the number of team members	as the number of team members increase, the number of communication channels increase, and hence, the risk on the project increases e.g. if there are 5 team members, there will be 5*(5-1)/2 = 10 communication channels
Schedule Performance Index (SPI)	**SPI = EV / PV** EV = earned value PV = planned value	< 1 behind schedule = 1 on schedule > 1 ahead of schedule
Cost Performance Index (CPI)	**CPI = EV / AC** EV = earned value AC = actual cost	< 1 Over budget = 1 On budget > 1 Under budget
Schedule Variance (SV)	**SV = EV - PV** EV = earned value PV = planned value	< 0 Behind schedule = 0 On schedule > 0 Ahead of schedule
Cost Variance (CV)	**CV = EV - AC** EV = earned value AC = actual cost	< 0 Over budget = 0 On budget > 0 Within budget

Aspiring project managers who plan to take the Project Management Professional (PMP) Exam know how important it is to understand the various formulas used in project management. These formulas not only help in solving mathematical problems but also provide insights into optimizing project performance and making informed decisions. In this comprehensive guide, we will delve into the essential PMP exam formulas, their applications, and tips to remember them effectively.

1. Cost Performance Index (CPI) Formula

The Cost Performance Index (CPI) is a vital project performance metric that indicates the efficiency of cost utilization. It is calculated by dividing the Earned Value (EV) by the Actual Cost (AC).



PMP Formula Guide: A Comprehensive Guide On PMP Exam Formulas by Mohammad Usmani(Kindle Edition)

4.2 out of 5

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Screen Reader	: Supported
Enhanced typesetting	: Enabled
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Formula: CPI = EV / AC

Understanding the CPI helps project managers assess the effectiveness of cost control measures and make necessary adjustments to keep the project within budget.

2. Schedule Performance Index (SPI) Formula

The Schedule Performance Index (SPI) measures the efficiency of time utilization on a project. It is calculated by dividing the Earned Value (EV) by the Planned Value (PV).

Formula: SPI = EV / PV

The SPI provides valuable insights into the project's progress and allows project managers to identify any delays and take corrective actions to stay on schedule.

3. Variance at Completion (VAC) Formula

Variance at Completion (VAC) is used to forecast the expected cost variance at the end of a project. It is calculated by subtracting the Budget at Completion (BAC) from the Estimate at Completion (EAC).

Formula: VAC = BAC - EAC

The VAC helps project managers determine if a project is likely to be over or under budget by the end date and take necessary actions to rectify the situation.

4. Estimate at Completion (EAC) Formula

The Estimate at Completion (EAC) predicts the total cost of a project upon completion. It takes into account the project's performance up to the current date and the estimated future performance.

Formula: EAC = AC + BAC - EV

By calculating the EAC, project managers can determine whether the project will be completed within budget or if additional measures need to be taken to control costs.

5. To-Complete Performance Index (TCPI) Formula

The To-Complete Performance Index (TCPI) provides a measure of how efficiently the remaining project work needs to be performed in order to achieve specified goals. It is calculated by dividing the remaining work to be done by the remaining funds available.

Formula: TCPI = (BAC - EV) / (BAC - AC)

The TCPI helps project managers assess if the project needs to be adjusted or accelerated to meet budget or schedule requirements.

6. Float (Total, Free, and Project Float)

Float is a critical concept in project management that refers to the amount of time a schedule activity can be delayed without affecting the project's overall timeline. There are three types of float: Total Float, Free Float, and Project Float.

Total Float: The total amount of time that an activity can be delayed without delaying the project's completion date.

Free Float: The amount of time that an activity can be delayed without delaying the start of any successor activity.

Project Float: The total amount of time that the entire project can be delayed without breaching contractual obligations or external deadlines.

7. Earned Value (EV) Formula

Earned Value (EV) is a technique used to track the progress of a project against the planned schedule and budget. It represents the value of work actually completed during a specific time period.

Formula: EV = (Planned % Complete) * BAC

By calculating the EV, project managers can assess if the project is progressing according to plan and take necessary actions to keep it on track.

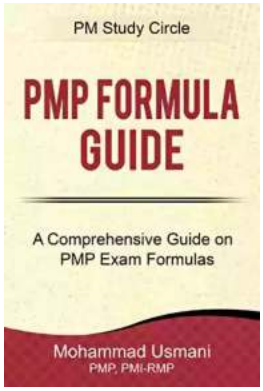
8. Return on Investment (ROI) Formula

Return on Investment (ROI) is a financial metric used to evaluate the profitability of an investment. It helps stakeholders determine whether the benefits of a project outweigh its costs.

Formula: ROI = (Net Profit / Cost of Investment) * 100

The ROI formula allows project managers and stakeholders to make informed decisions regarding the viability of a project and its potential financial returns.

Mastering the various formulas used in project management is crucial for aspiring project managers aiming to pass the PMP exam and excel in their careers. The understanding of these formulas empowers project managers to make data-driven decisions, optimize project performance, and provide effective communication with stakeholders. By internalizing and applying the comprehensive guide to PMP exam formulas provided in this article, project managers can confidently tackle any formula-related questions that come their way.



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“Oh man, these mathematical questions are giving me a very hard time – I think I will fail my PMP Exam!”

- No you won’t, and mathematical questions are easy; you just need the comprehensive and extremely helpful PMP Formula Guide.

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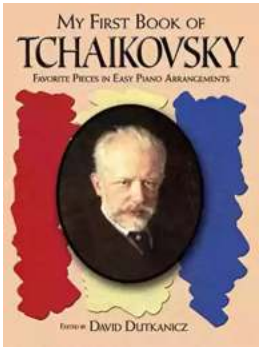

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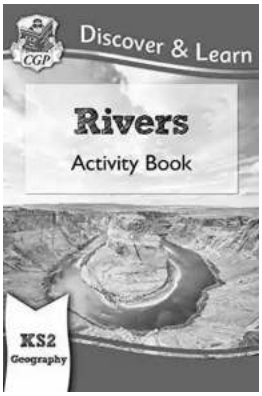

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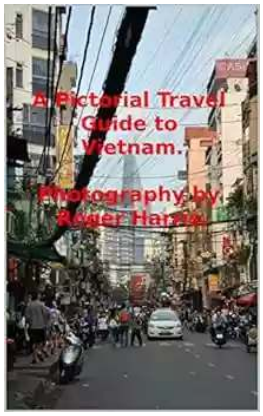

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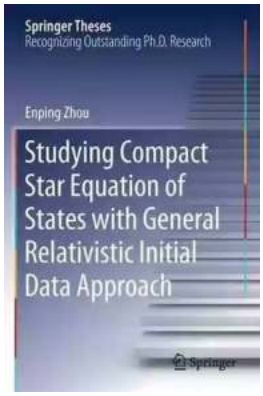

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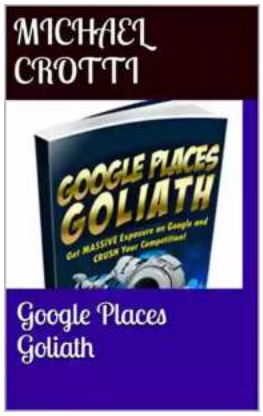

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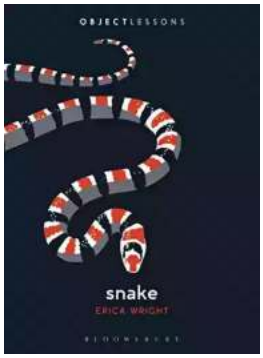

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