



Handy formulas for the PMP® exam

Net Present Value (NPV)

$$PV = FV/(1+i)^n$$

Earned Value Management (EVM)

$$\text{Schedule variance (SV)} = EV - PV$$

$$\text{Cost variance (CV)} = EV - AC$$

$$\text{Schedule performance index (SPI)} = EV/PV$$

$$\text{Cost performance index (CPI)} = EV/AC$$

$$\text{Budget at completion} = BAC$$

$$\text{EAC (Estimate at completion)}$$

- Formula "1" $EAC = AC + \text{Bottom up ETC}$ - adds what's been spent thus far, recalculates the remaining, using bottom up estimating and adds the two. Most accurate/most time consuming
- Formula "2" $EAC = AC + (BAC - EV)$ - current rate of work has not conformed with original projections (good or bad) but you believe the remaining work will.
- Formula "3" $EAC = BAC/CPI$ - accepts that the current rate of work production is probably going to continue, i.e. no change
- Formula "4" $EAC = AC + [(BAC - EV) / (CPI \times SPI)]$ - considers the efficiency of both indices (CPI, SPI) and will likely use a weight for either or both. Typically used when finishing on time is a BIG deal.

$$\text{VAC (Variance at completion)} = BAC - EAC$$

$$\text{TCPI (To complete performance index)} =$$

$$BAC: (BAC - EV) / (BAC - AC) \text{ OR } EAC: (BAC - EV) / (EAC - AC) \text{ Usage depends on whether your initial BAC is viable.}$$

PERT Three-point estimate

$$\text{Triangular Distribution: } (tO + tM + tP)/3$$

$$\text{Beta Distribution: } (tO + 4tM + tP)/6$$

$$\text{Standard deviation: } (p-o)/6$$

$$\text{Expected Monetary Value EMV (risk)} = \text{Probability} \times \text{Impact(Cost)}$$

$$\text{Communication Channels} = n(n-1)/2$$