

# Work Measurement

Determining the length of time it should take to complete a task



<b><u>Reason for Standards</u></b>	<b><u>Traditional</u></b>	<b><u>New Philosophies</u></b>
• planning\scheduling	yes	YES
• budgeting	yes	YES
• performance measurement	yes	No!!!!!!
• cost accounting standards used in standard cost systems Both Job Order and Process-Costing	yes	NO!!!!!!

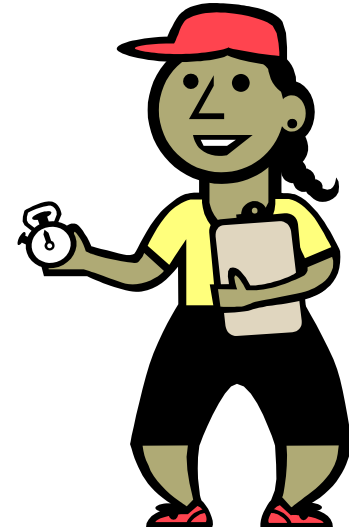
# Standard Time

amount of time that it should take a normal, qualified worker working at a normal pace to complete a specific task using given methods, tools, and material



# Ways to Establish Standards

- stopwatch time studies
- historical times
  - called standard elemental times
- work sampling



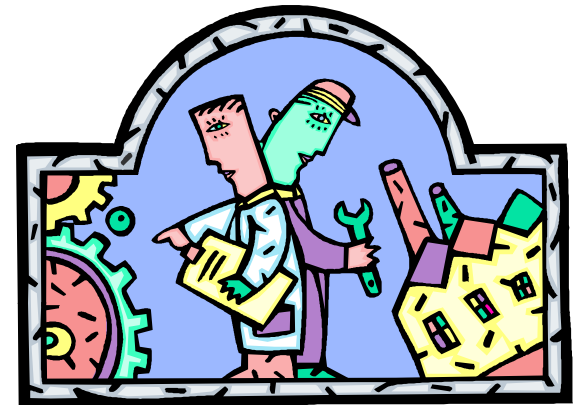
# Stopwatch Study

- observed time  $OT = \sum X/N$
- normal time  $NT = OT * PR$
- standard time  $ST = NT * (1 + AF)$



# Goals of a Time Study

1. eliminate unnecessary work
2. continuously improve the process
3. standardize the methods
4. develop the time standards
5. reduce the risk of injury



- $PR=1.10$  worker slightly faster than normal

- $AF=.15$  adjusting for Murphy

- Hawthorne Studies

- Concluded that social factors have an effect on behavior

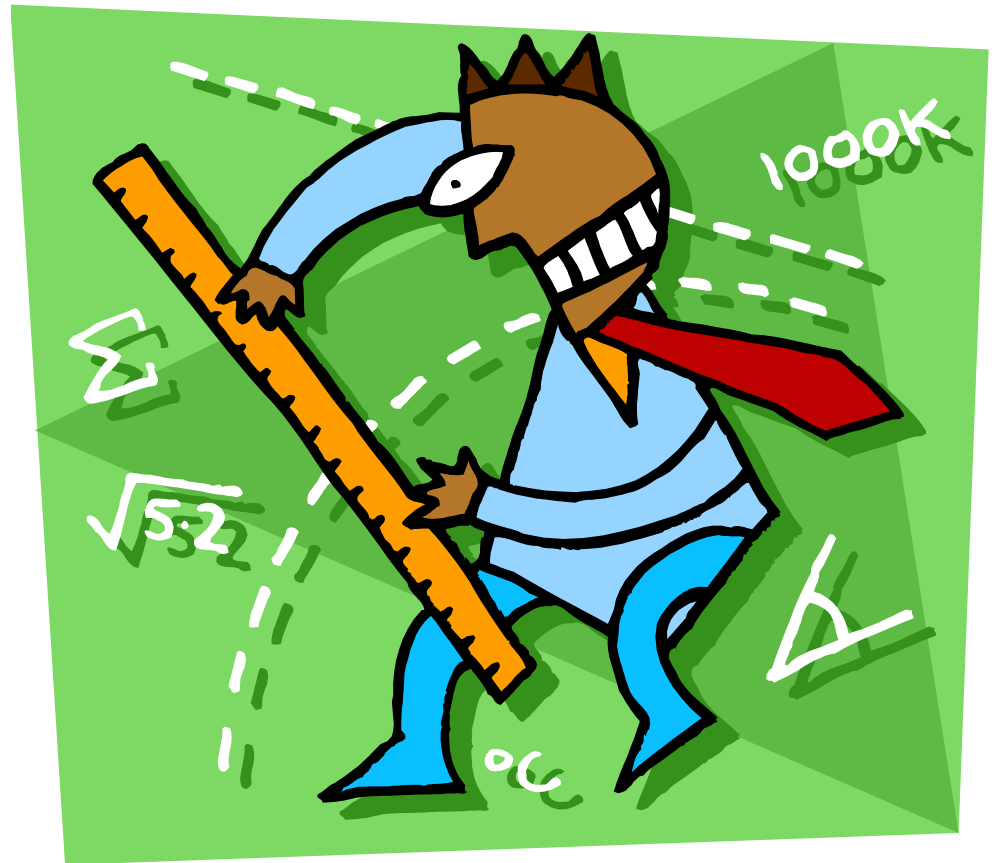


1	4.20
2	4.15
3	4.08
4	4.12
5	4.15
6	4.18
7	4.14
8	4.14
9	4.19

SUM

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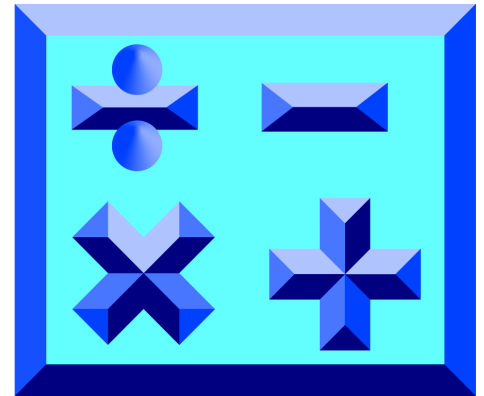
37.35





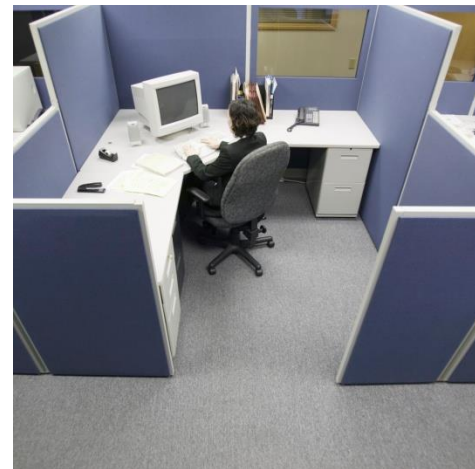
# Calculations

- $OT = (37.35/9) = 4.15 \quad (\sum X/N)$
- Normal Time =  $(4.15 * 1.10) \quad (OT * PR)$
- $= 4.565$
- Standard Time =  $NT * (1 + AF)$
- $= 4.565 * (1 + .15)$
- $= 5.25$



# Work Sampling

- an alternative to a time study
- two primary purposes
  1. ratio-delay studies
  2. analysis of non-repetitive jobs



# COMPENSATION

- Time-Based Systems
  - hourly & salary compensation
- Output-Based or Incentive

