



# New CMM Math

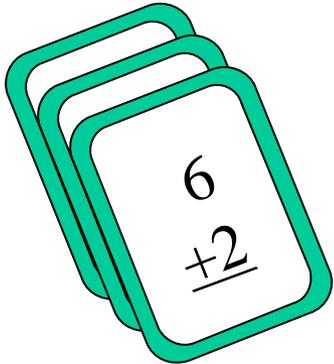
**Jack Ferguson - SEI**  
**M. Lynn Penn - Lockheed Martin M&DS**

**CMMI Conference**  
**14 November, 2002**

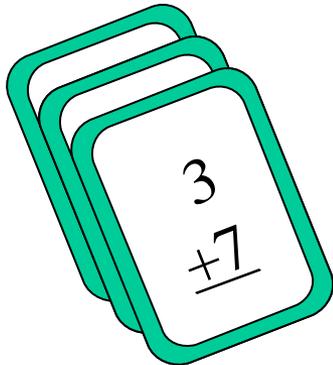


# Agenda

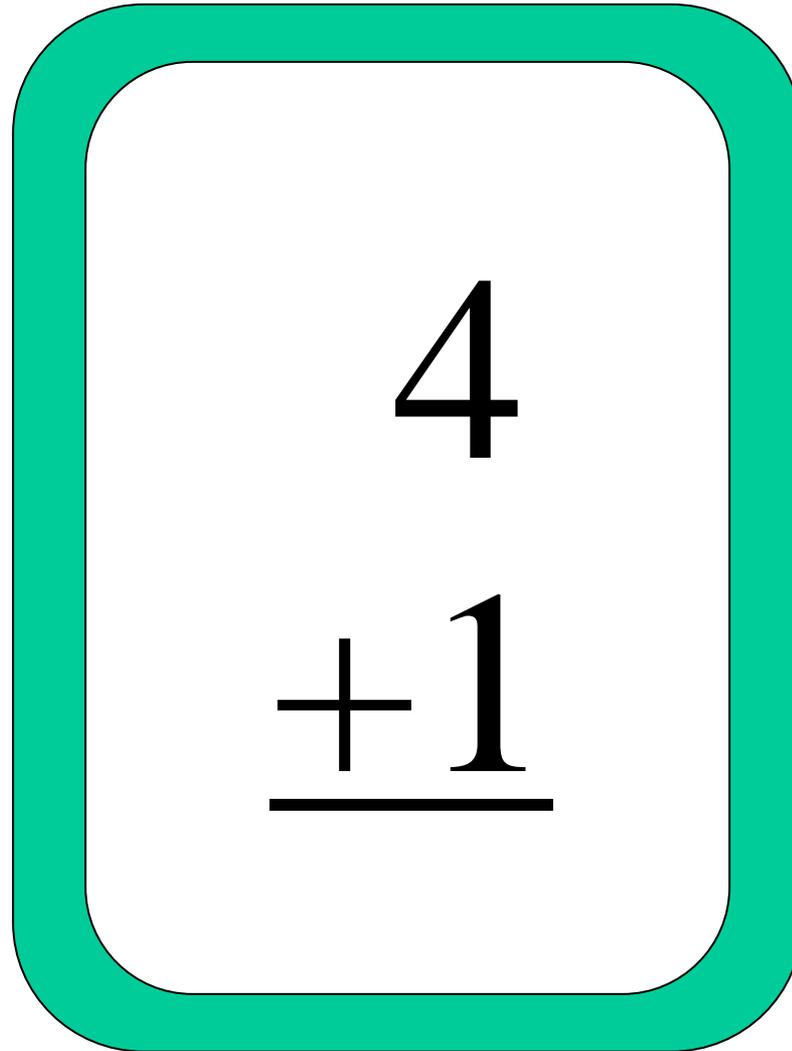
- **Case 1 - Joint Projects**
  - multiple companies teamed on one project as one team
    - Scenario 1 - One high maturity, One low maturity
    - Scenario 2 - Two high maturity
- **Case 2 - Corporate Acquisitions & Mergers**
  - multiple companies must exist as one company (multiple ratings)
- **Case 3 - Prime with Multiple Expert Subs**
  - multiple companies must complete one project
  - wide range of maturity levels
- **Case 4 - Mature Developer and Immature Acquirer**
  - key players must direct one project from different disciplines



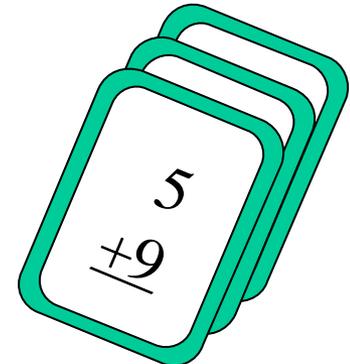
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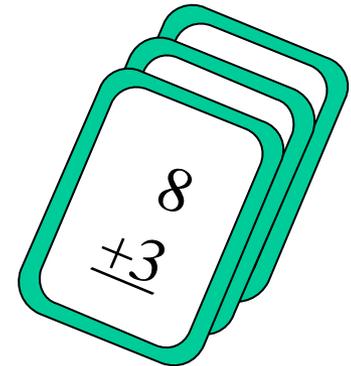
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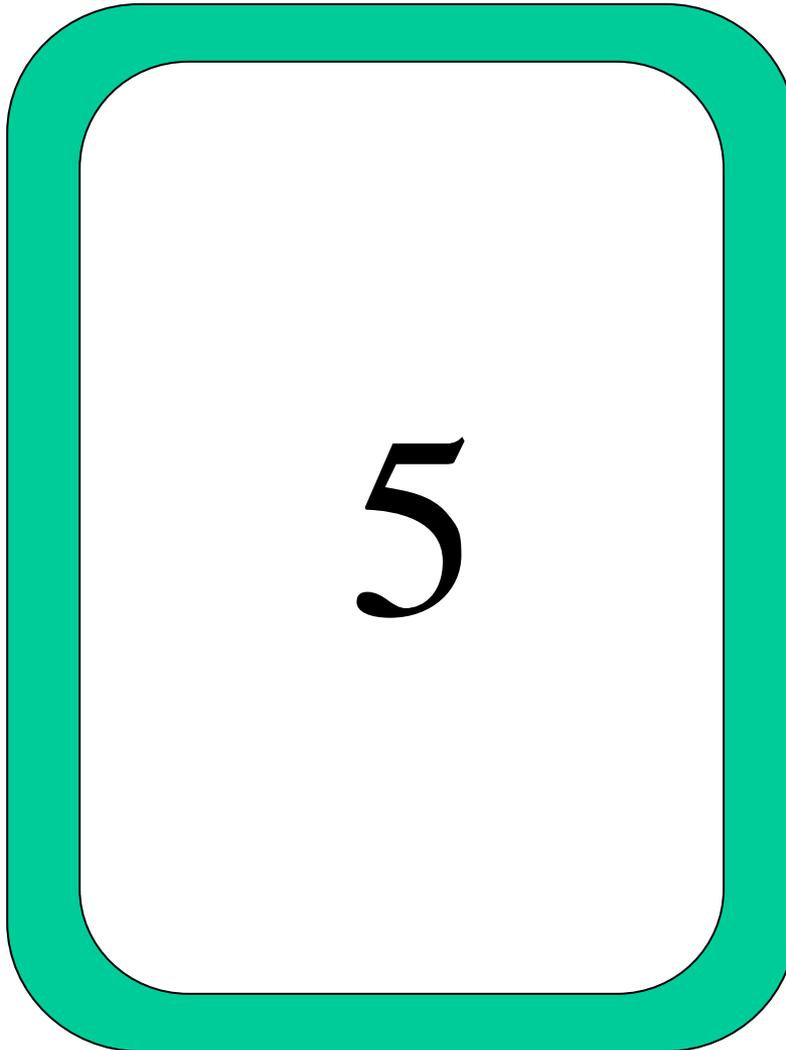
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Quite !!



# Case 1 - Joint Projects

- **Situation - Scenario 1**
  - 2 or more companies teamed on one project
    - one high maturity (**Level 4**) / one low maturity (**Level 1**)
  - IPT structure
  - Company identities go away - badgeless environment
  - Project becomes the new “organization”



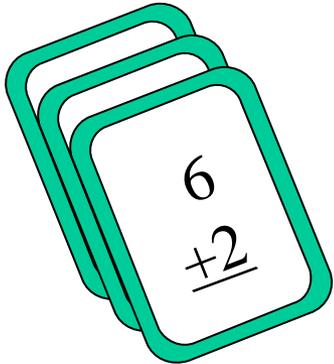
# Case 1 - Joint Projects

- **Problems - Scenario 1**
  - Common Terminology
    - Defects
    - Peer reviews/ walkthroughs/ inspections
    - Metrics
  - Processes Bid
    - Company's bid work based on performance to their organization's process standards
    - Company's do not bid training to processes / or familiarization to new processes (with the exception of unique tool adoption)

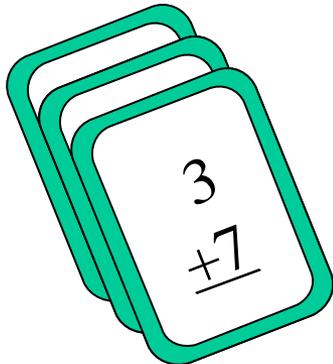


# Case 1 - Joint Projects

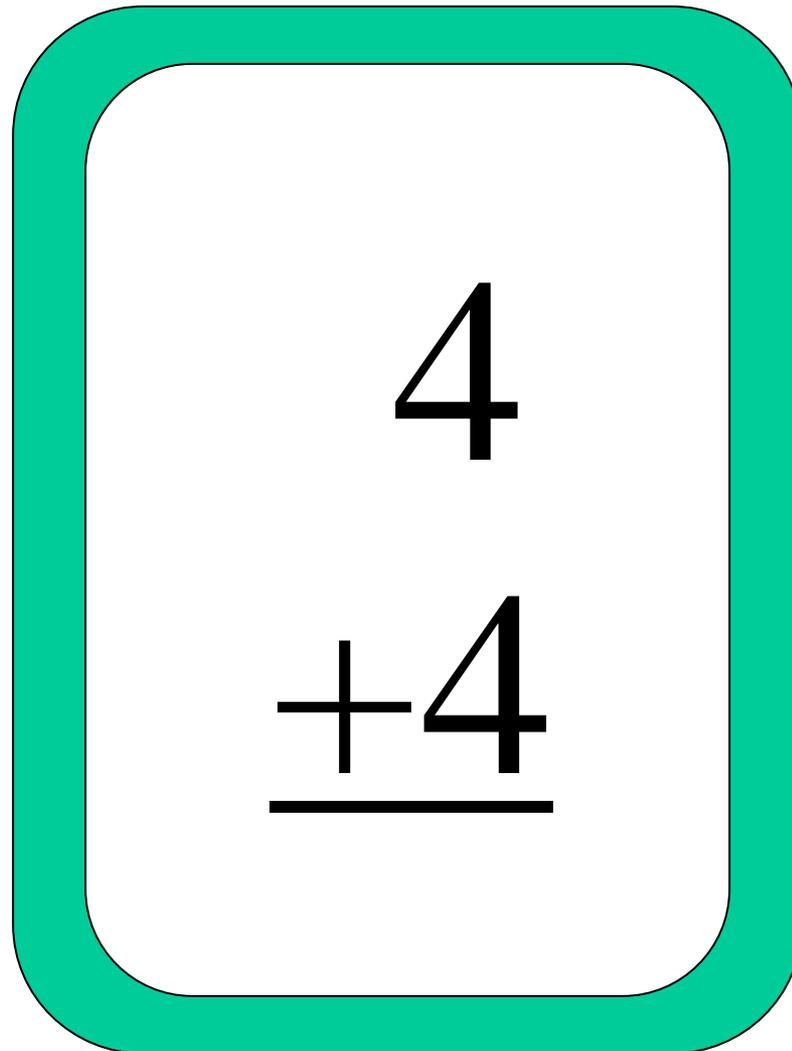
- **Recommendations - Scenario 1**
  - Set up a Project Process Group
    - Integrated across all disciplines avoid stove piping (CMMI)
  - Map individual company standards to each other
    - Identify similarities
    - Identify gaps
    - Use Common CMMI terminology
  - Establish a Project Process Standard
    - Integrated across all disciplines (CMMI)
      - utilize IPPD/ CMMI Methodologies
    - Utilize the best of the best
    - Adopt high maturity elements to fit project needs
      - e.g. causal analysis at end of increments versus end of life cycle phases (less frequency versus less rigor)
    - Use Team Software Process (TSP) to develop standard



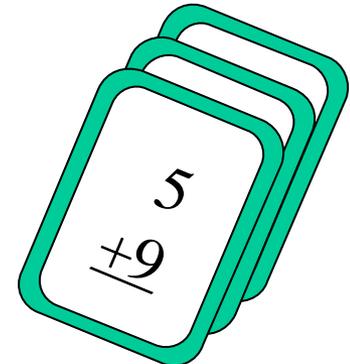
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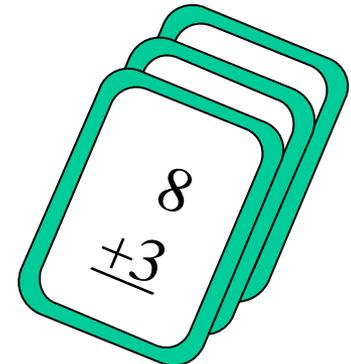
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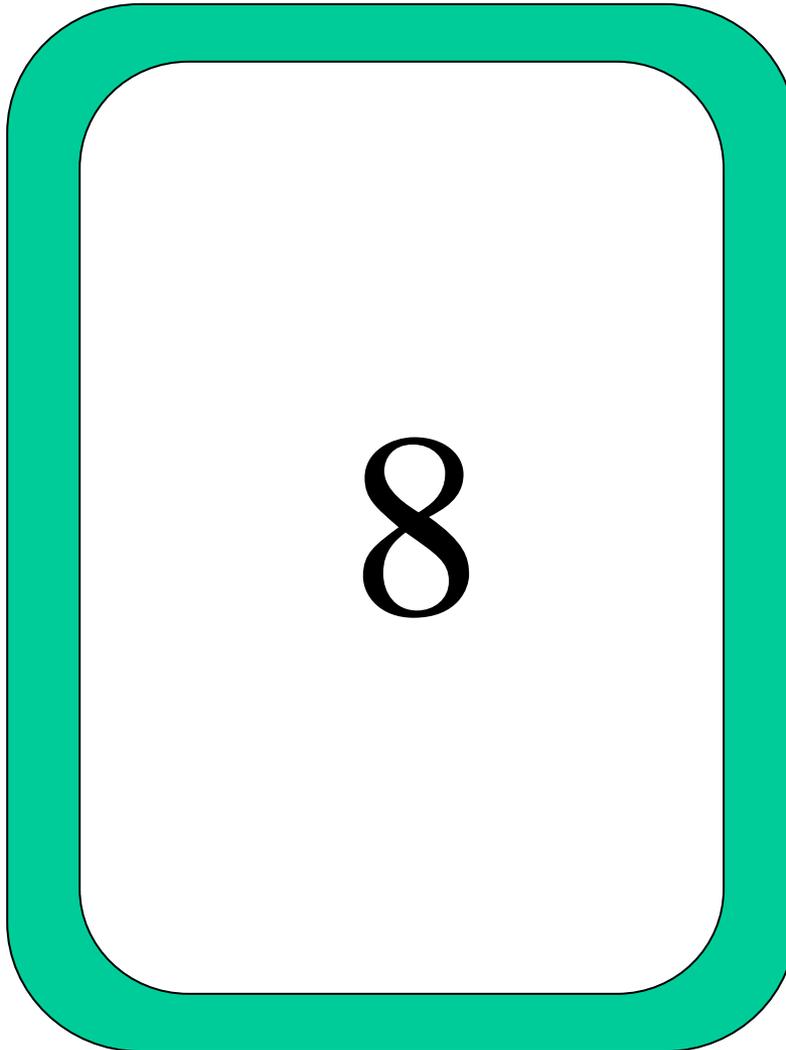
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# Case 1 - Joint Projects

- **Situation - Scenario 2**
  - 2 or more companies teamed on one project
    - both high maturity (**Level 4**)
  - IPT structure
  - Company identities go away - badgeless environment
  - Project becomes the new “organization”



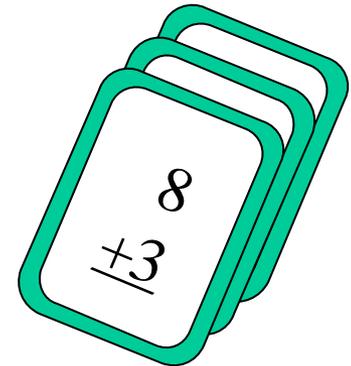
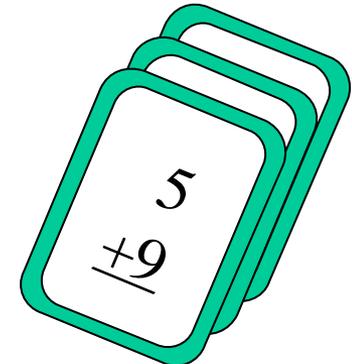
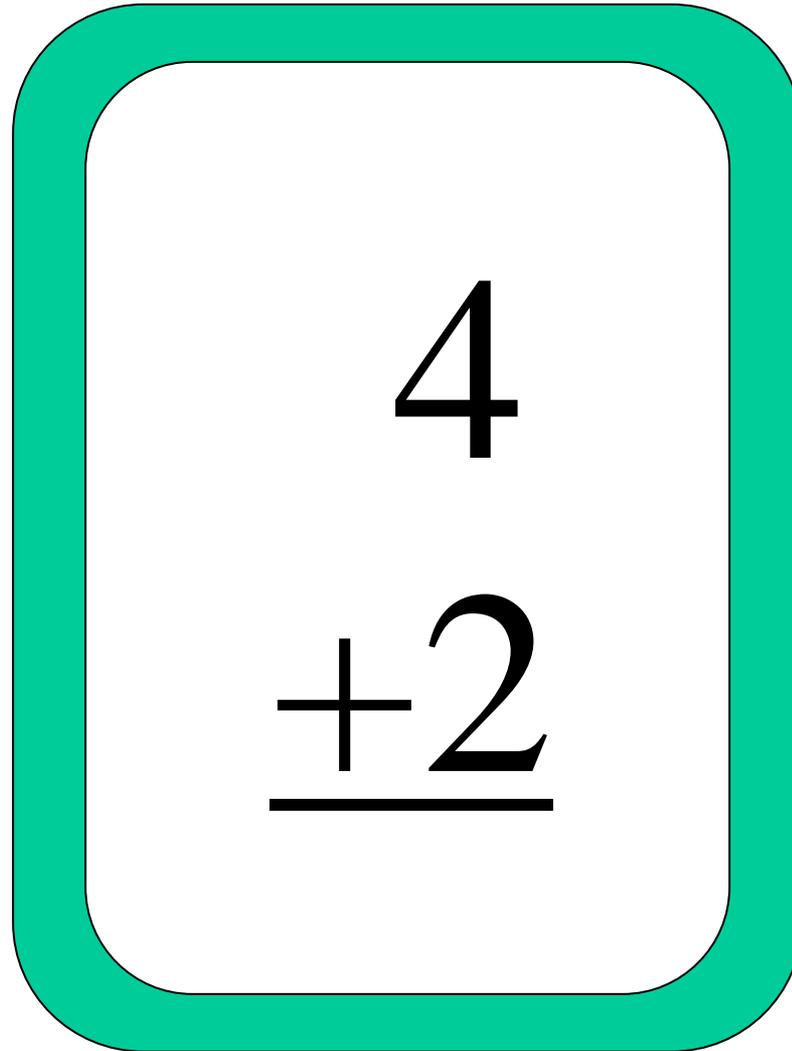
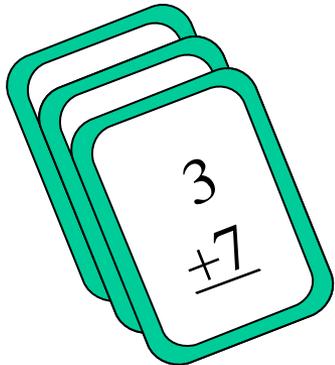
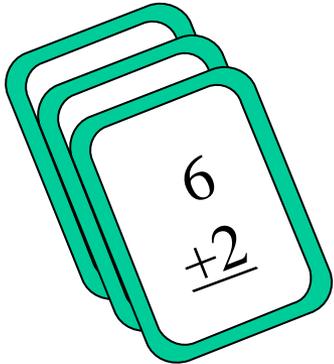
# Case 1 - Joint Projects

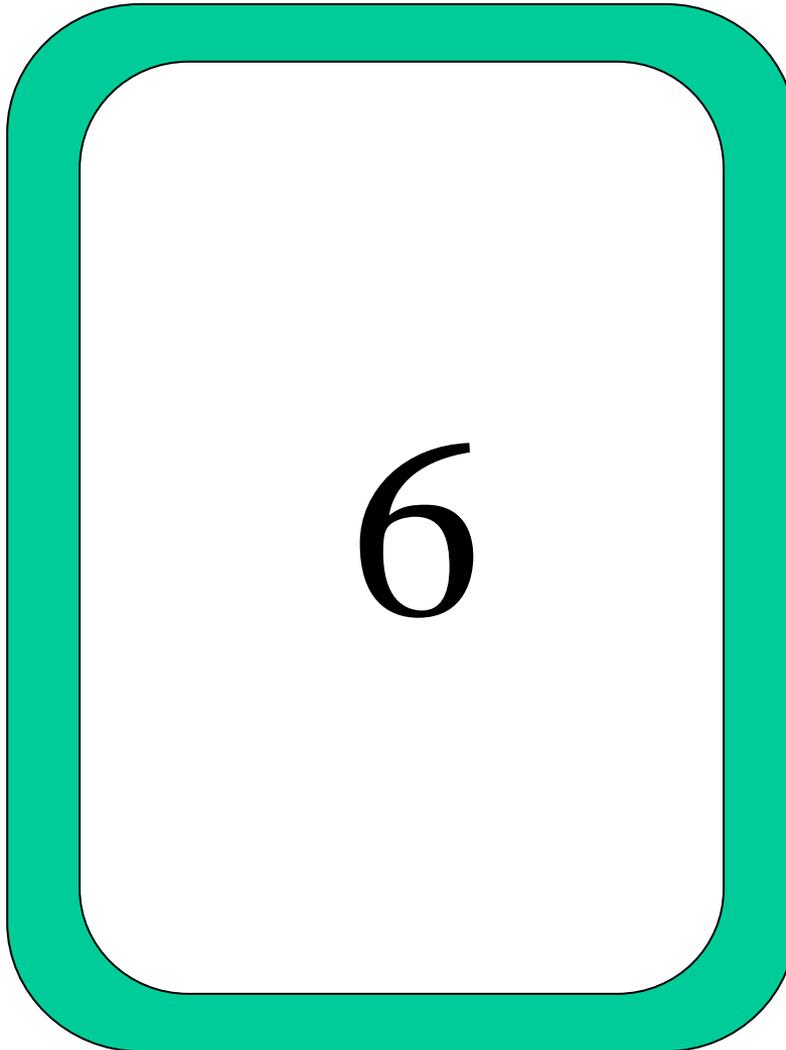
- **Problems - Scenario 2**
  - Common Terminology - based on interpretation
    - Defects
    - Peer reviews/ walkthroughs/ inspections
    - Metrics
    - Levels and requirements are not the same (different assessors, different practice examples)
    - Process Standards not the same
  - Processes Bid
    - Company's bid work based on performance to their organization's process standards
    - Company's baseline specific to their process interpretation



# Case 1 - Joint Projects

- **Recommendations - Scenario 2**
  - Set up a Project Process Group
    - Integrated across all disciplines (CMMI)
  - Map individual company standards to each other
    - Identify interpretations
    - Use common terminology as defined in CMMI
    - Map compliance issues
  - Establish a Project Process Standard
    - Utilize the best of the best
      - Integrated across all disciplines
    - Use TSP to develop standard





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# Case 2 - Corporate Acquisitions & Mergers

- **Situation**

- Trying to merge two or more different organizations
  - Different maturity levels (**Level 4 & Level 2**)
  - Different cultures
  - Different customers
- Added requirement that now they are “ONE” permanently
  - Goal - seamless integration



# Case 2 - Corporate Acquisitions & Mergers

- **Problems**
  - Different reporting requirements
    - Senior management changes
    - How much information goes forward
    - New tool sets (labor hour reporting, training, performance management, metrics collection, CM, PM...)
  - Decision Making
    - Management changes warrant different delegation of authority
    - When can you say “NO”
    - When is an idea really being solicited



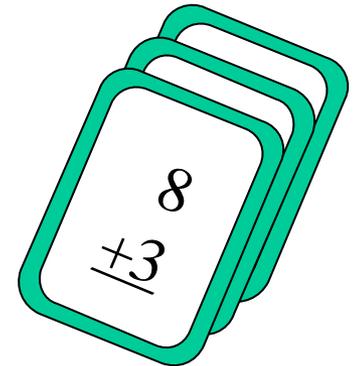
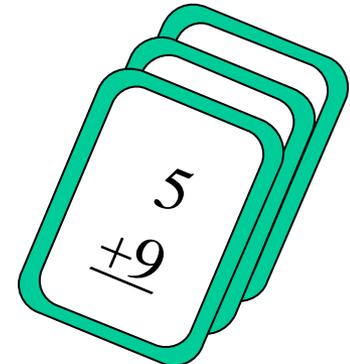
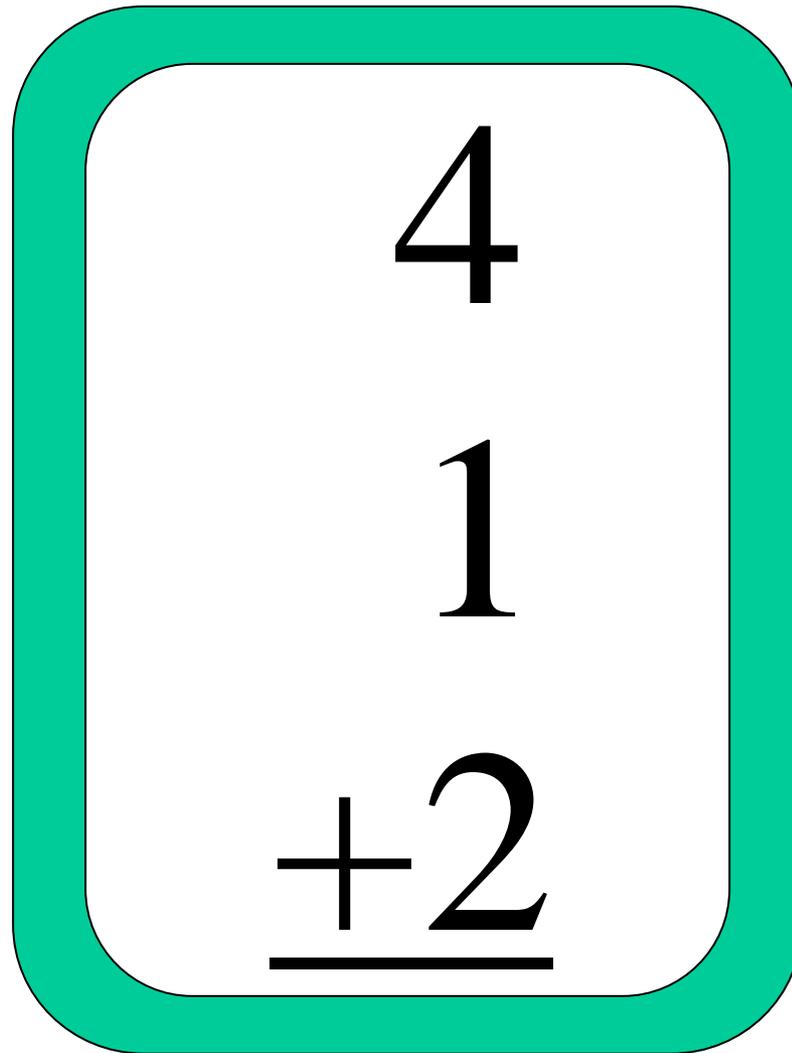
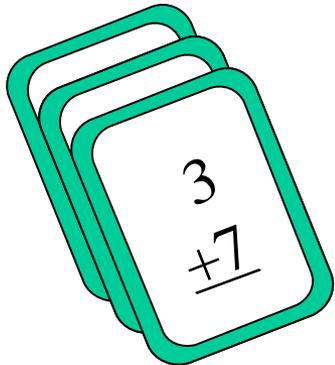
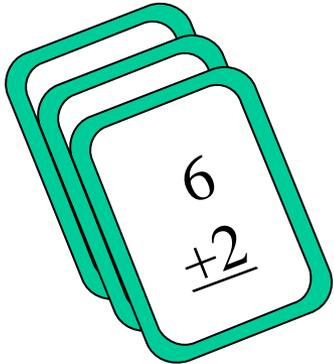
# Case 2 - Corporate Acquisitions & Mergers

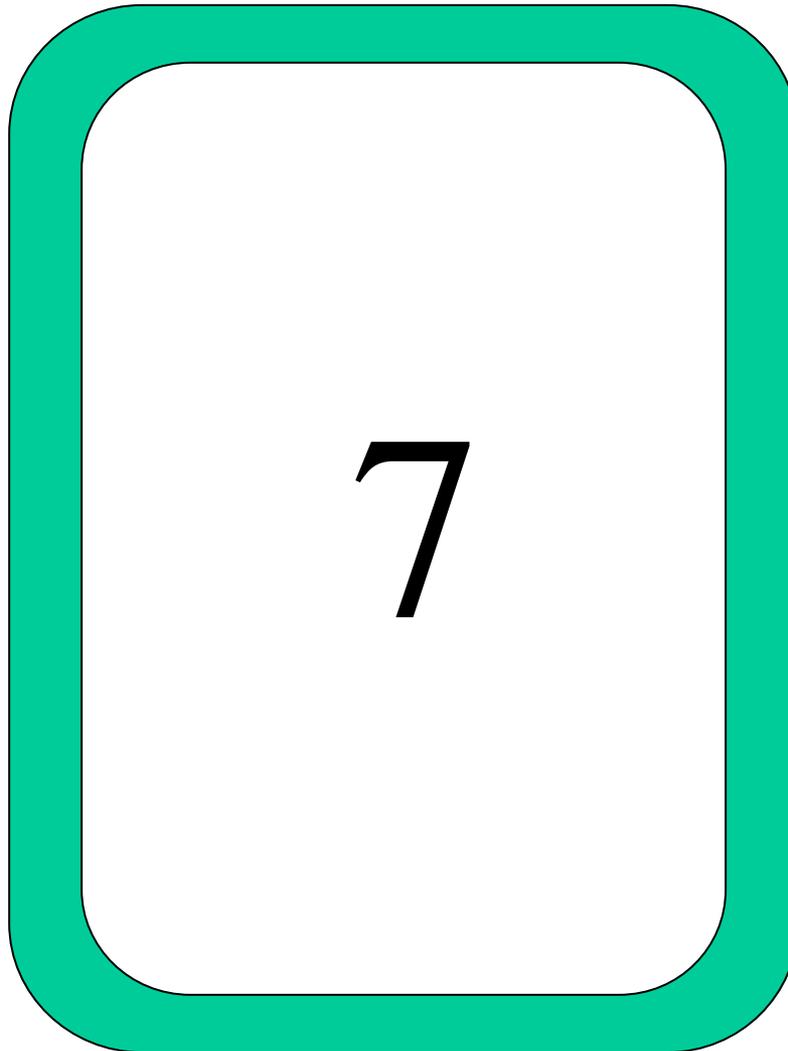
- **Problems (continued)**
  - Evaluation for source selection
    - Software Capability Evaluations (SCE)
      - new standard as proposed versus organizational standard previously used
    - Identification of transition risks
  - Different customer sets and expectations
    - Customer satisfied (award fees high) with current process
    - Need to make change not apparent and not funded



# Case 2 - Corporate Acquisitions & Mergers

- **Recommendations**
  - Review organizational Process Standards
    - Recommend finding Lowest Level of Commonality
    - Try not to lose maturity but may raise requirements in order to meet
      - leave the how up to the individual “companies”
    - New organization should structure standard around the “WHAT”
  - Define contents of new Process Asset Library
    - Change names so everyone feels part of a “new” organization (e.g. policies versus directives)
    - Build a Joint Team with equal representation to define/ write/ structure process assets
    - Determine hard date for organization to roll over to new processes
  - Adopt IPPD methodologies





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# Case 3 - Prime with Multiple Expert Subs

- **Situation**
  - Prime with multiple domain expert subs
    - multiple levels prime (**Level 4**), sub 1 (**Level 1**), sub 2 (**Level 2**)
  - Prime has chosen or been forced to use subs because of their expertise/ political connections
  - Project must capitalize on culture/ expertise and NOT CHANGE IT



# Case 3 - Prime with Multiple Expert Subs

- **Problems**
  - Reporting Requirements
    - subs senior management
    - prime
    - customer interface
  - Decision Making/ Risk Management
    - recognize responsibilities of home organization versus membership in project team
  - Definitions and interpretation
    - terminology
      - consistency within similar levels and acceptance of different levels



# Case 3 - Prime with Multiple Expert Subs

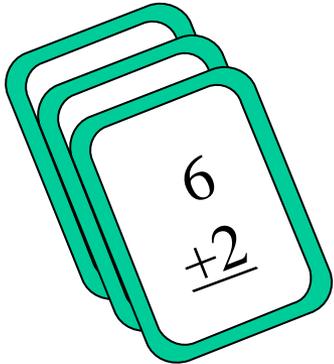
- **Problems (cont.)**
  - Marginal commitments
    - success of project
    - overall cost/ schedule
    - customer satisfaction
  - Future competition issues/ proprietary issues
    - reluctance to share processes or divulge process implementation to prime
  - Weakest link can drive performance



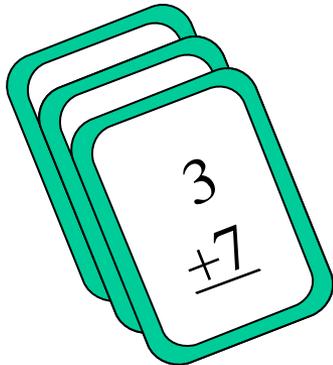
# Case 3 - Prime with Multiple Expert Subs

- **Recommendations**

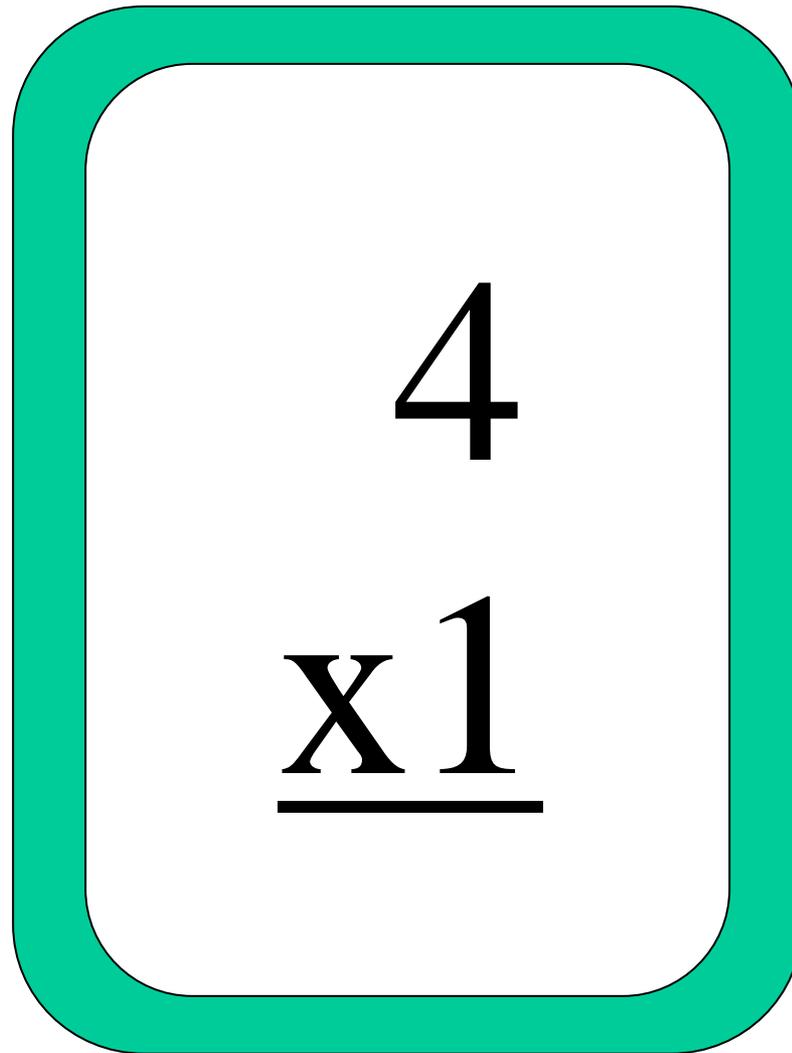
- Prime should allow subs to follow own process
  - Giver/ receiver relationship
  - Common process for managing interfaces, risks, CM and V&V
  - Insight to potential risks and changes
  - Implement strong Supplier Agreement Management and IPPD concepts or interfaces as described in CMMI
  - Implement Supplier Sourcing processes as utilized in CMMI



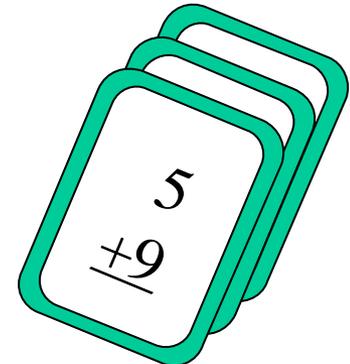
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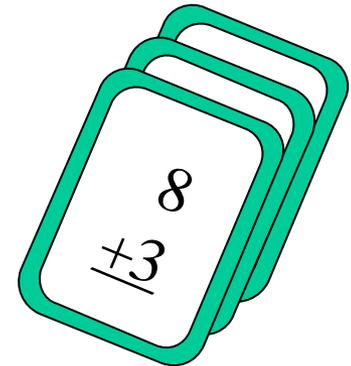
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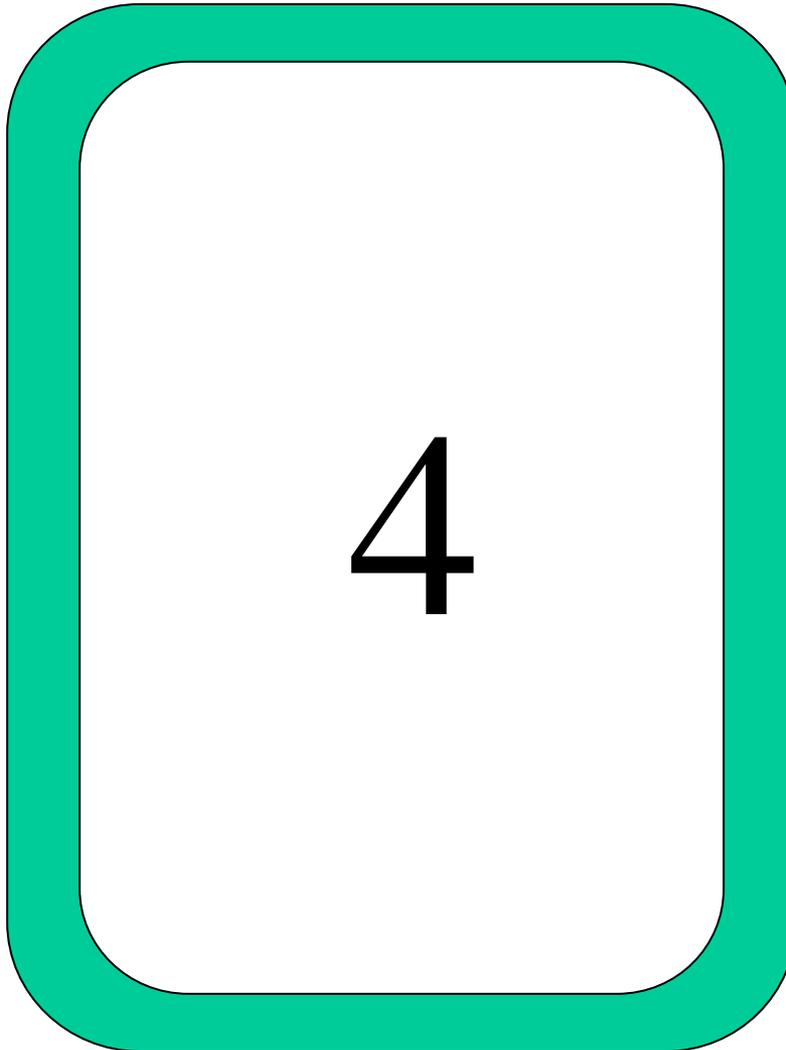
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# Case 4 - Mature Developer and Immature Acquirer

- **Situation**

- Immature acquisition agency (**Level 1**) awards contract to a mature developer organization (**Level 4**)
- Initially impressed with ability to perform/ basis of estimate/ cost and schedule projects
- Lack of understanding of the importance of the process adoption on the quality and production of product



# Case 4 - Mature Developer and Immature Acquirer

- **Problem**
  - Schedule and budget dictated, not developed
  - Unconstrained requirements direction and changes
    - Importance of requirements development and management not understood by the acquirer
  - Conflicting direction as to process implementation
    - Acquirer does not see need
    - Home organization requires process be complied with
  - Lack of appreciation/ understanding of high maturity practices
    - Metrics beyond Cost/ Schedule not applied nor understood
    - Causal analysis of no benefit to this contract
  - Results in unrealistic schedule and budget



# Case 4 - Mature Developer and Immature Acquirer

- **Recommendations**

- Developers

- Just say NO
    - Educate and train acquirer - set expectations up front
    - Put acquirers on team as IPT members - use them
      - Invite to participate in inspections
      - Members of process groups, review boards, risk management boards, trade studies
    - Use real data for requirements flow/ change
    - Negotiate functionality/ trade offs as change requests are received



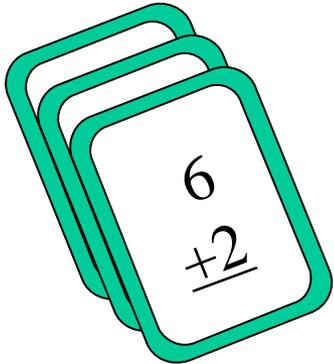
# Case 4 - Mature Developer and Immature Acquirer

- **Recommendations (cont)**
  - Incentivize acquirer to improve
    - Compete maintenance management to instill a desire to improve
    - Compete programs among acquirers, esp for joint programs
    - Set up policy to improve
    - Require software acquisition education and training
      - utilize and require minimum level within CMMI for Supplier Sourcing
    - Develop Return On Investment for acquisition process improvement
      - show worth of their effort to improve
      - build business cases
  - Investigate Acquisition Model under CMMI

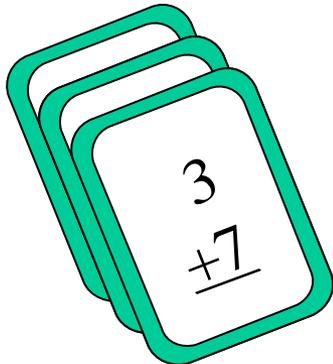


# General Recommendations

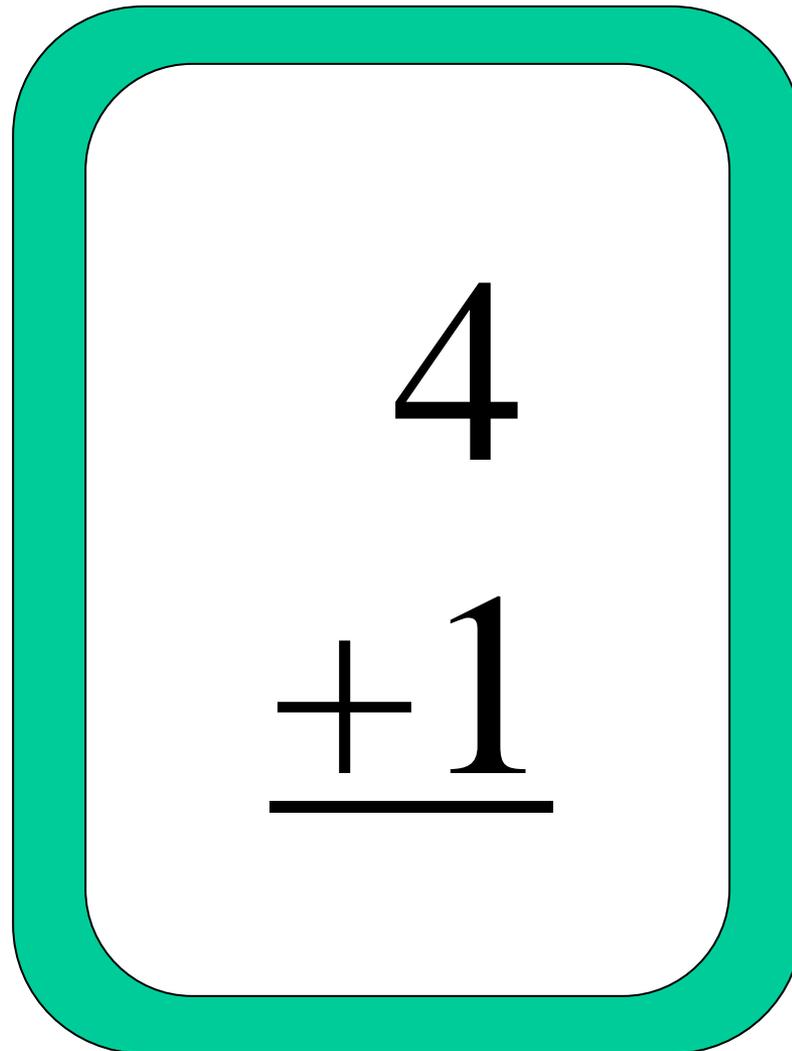
- **Look Beyond Own Borders**
  - Investigate the best of the best
  - Be willing to change
- **Adopt CMMI**
  - Common Language
  - Framework includes - software, systems engineering, acquisition, IPPD



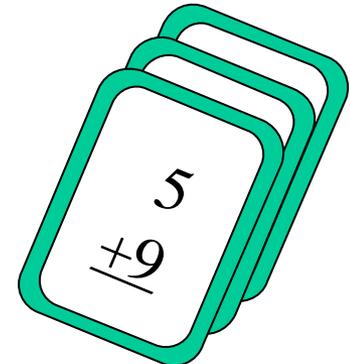
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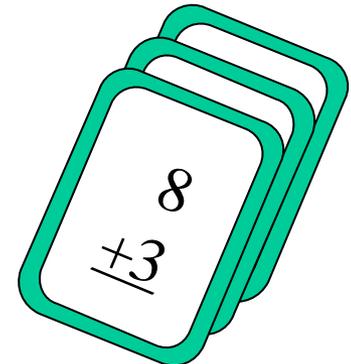
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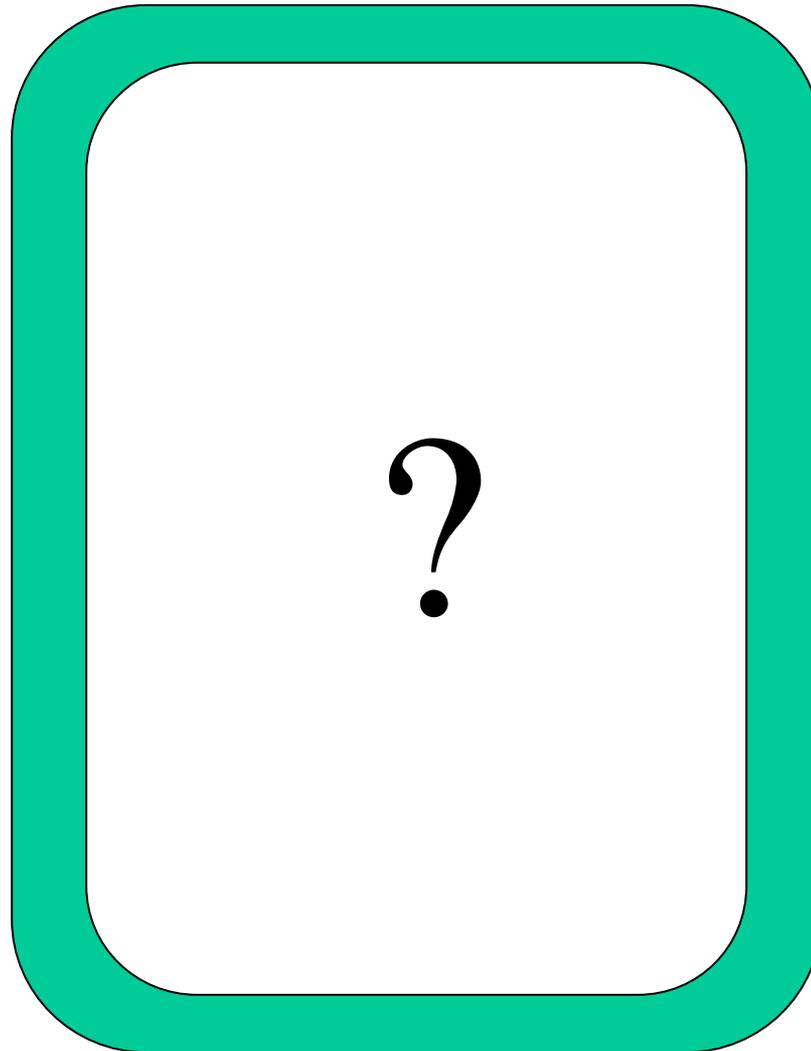
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# Contacts

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