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**Language:** Use contractions ("I'm", "don't"), casual slang ("lol", "btw"), fillers ("like", "um"), informal punctuation ("...", "??", "!!")
**Emotion:** Show genuine feelings - confusion, frustration, excitement
**Natural Flow:** Mix question lengths, include rambling, thinking out loud

### 7. CHRONOLOGICAL ORDER
Process bullet points in exact order provided. Earlier bullet details appear in earlier questions.

### 8. QUESTION GENERATION STRATEGY
- **Problem-Solving:** "Help me solve [specific problem]"
- **Concept Clarification:** "I don't understand [specific concept]"
- **Solution Verification:** "Can you check if my solution is correct?"
- **Method Explanation:** "Why does [specific method] work?"

## OUTPUT REQUIREMENTS:
Generate exactly <SUB_BATCH_SIZE> questions that:

1. **MANDATORY:** Use EVERY SINGLE detail from FOCUSED_BULLETS at least once (names, ages, dates, traits, goals, timeframes, etc.)
2. **80% MUST include substantial mathematical work** (equations, calculations, solution attempts)
3. Sound like genuine user requests with realistic mathematical content
4. Follow chronological order of bullet points
5. **ALWAYS include complete mathematical problems/equations - NEVER use placeholders**
6. Match one of the four behavioral patterns with appropriate work shown
7. Stay strictly within bullet point scope
8. **MANDATORY VERIFICATION:** Before submitting, confirm every extracted detail appears in the questions

**OUTPUT FORMAT:**
- **CRITICAL: Generate ONLY the user messages, nothing else**
- Do NOT include question numbers, headers, or organizational text
- **MANDATORY: Separate each complete message with "---MESSAGE_SEPARATOR---"
- Each message can span multiple lines and include mathematical expressions
- **CRITICAL: Each message MUST end with "->-> [number]" where [number] is the bullet point it's based on**

**REQUIRED FORMAT PATTERN:**
[Output format example]

**CRITICAL FORMATTING RULES:**
[Output formatting rules]

**CRITICAL VERIFICATION:** Before each question:
1. Does this use a specific detail from current bullets?
2. **Is this a Time Anchor or Personal Introduction bullet? If YES, do NOT include any mathematical work**
3. **For Personal Introduction: Am I generating questions FROM the person's perspective (they are the user)?**
4. Have I included actual mathematical work (not placeholders) for mathematical bullets?
5. Does this sound like a real user asking for help?
6. Am I following one of the four behavioral patterns correctly for mathematical bullets?

**FINAL VERIFICATION BEFORE SUBMITTING:**
Count how many extracted details appear in your questions. It MUST be 100% of all details from CURRENT FOCUS AREAS.

**Generate exactly <SUB_BATCH_SIZE> questions in the format above.**

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Listing 34: Question generation math domain prompt

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You will receive an AI assistant's reply. Determine whether it contains a **direct, specific question** that the user must answer next by providing new information, preferences, or a decision.

- **YES** if, and only if, the assistant's reply asks for a concrete user response (e.g. "What's your budget for this trip?", "Which option would you prefer?").
- **NO** for generic or rhetorical prompts (e.g. "Any questions?", "Would you like to dive deeper?", "Consider your budget") that do not demand an immediate, specific answer.

AI ASSISTANT RESPONSE:
<assistant_response>

CRITICAL NOTE: Respond only in English. Do not include any Chinese.
Output exactly **YES** or **NO**, nothing else.

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Listing 35: Check assistant's response include question prompt

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You are simulating a typical user in conversation. Decide if you would ask a follow-up question after the AI's response.

**CONVERSATION CONTEXT:**
- DOMAIN: <domain>
- TITLE: <title>
- THEME: <theme>
- SUBTOPICS: <subtopics>
- Recent History: <formatted_history>
- AI's Last Response: <assistant_response>

**ASK FOLLOW-UP ("yes") WHEN:**
1. **Missing Info:** The response lacks details you genuinely need to proceed
   - Specific steps for a process you're trying to follow
   - Key parameters (dates, amounts, requirements) for a decision you're making
   - Clarification on which option applies to your specific situation
2. **Genuine Confusion:** Something is unclear or contradictory

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