Determine if a valid conclusion can be reached from the two true statements using the Law of Detachment or the Law of Syllogism. If a valid conclusion is possible, state it and circle the law that is used. If a valid conclusion does not follow, write “no conclusion”.

1. If Jim is a Texan, then he is an American.  
   Jim is a Texan.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

2. If Pedro is taking history, then he will study about World War II.  
   Pedro will study about World War II.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

3. If Spot is a dog, then he has four legs.  
   Spot has four legs.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

4. If Henry studies his algebra, then he passes the test.  
   If Henry passes the test, then he will get a good grade.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

5. If the measure of an angle is greater than 90°, then it is obtuse.  
   \( m\angle T > 90° \), then it is obtuse.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

6. If William is reading, then he is reading a magazine.  
   If William is reading a magazine, then he is reading a magazine about computers.  
   Conclusion:  
   Law of Detachment or Law of Syllogism

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**The Mystery Math Ball! A Logic-Based Mystery**

You're invited to a Math Ball, but you don't know when, where, or who is hosting it. Use your deductive reasoning skills and the clues provided to solve the missing information.

**You're Invited**

**to a**

**"Mystery Math Ball!"**

**date:** to be figured out by you

**place:** to be figured out by you

**hosted by:** to be figured out by you

Good luck!!!
Mystery Date

<table>
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</tbody>
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Clues:
1. The date is not a multiple of 4 or 5.
2. The date is a multiple of 2.
3. The date is divisible by 6.
4. The date is not a prime number.
5. The date is the greater number of the two possible dates left.

When is the “Mystery Math Ball?” ___8___

Mystery Place

Clues:
1. The house is an even number.
2. The product of the digits in the one’s place and the hundred’s place is 6. The sum of these two digits is 5.
3. The digit in the ten thousand’s place is the difference between the hundred’s place digit and the one’s place digit.
4. The ten’s digit is the greatest single, even digit.
5. The sum of the digits in the ten thousand’s place and the thousand’s place digit is equal to the digit in the ten’s place.

Where is the “Mystery Math Ball?”

1  7  3  8  2

Mystery Host

<table>
<thead>
<tr>
<th>Ages</th>
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<td>Joe</td>
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<tr>
<td>Jill</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Janet</td>
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<td>X</td>
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<td></td>
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<tr>
<td>Jim</td>
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<td>X</td>
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</tbody>
</table>

Clues:
1. Jill is 3 years younger than John.
2. Jim is younger than Joe.
3. Janet is older than Joe.
4. Jill is not 15 years old.
5. Jim is not the youngest person.
6. John is the second oldest person.
7. Joe is 2 years younger than Janet.
8. Oldest is host.

Who is the host of the “Mystery Math Ball?” ___Janet___