Name _____ Date _____

The Mystery Math Ball! A Logic-based Mystery

Jennifer received the following invitation in the mail.

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

Jennifer really wants to go to this party. Can you help her figure out the missing information? Use your deductive reasoning skills and the clues provided to solve the mystery about when and where this party will be held, and who is hosting the party. Good luck!!

Name _____ Date _____

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Mystery Date

Use the clues and the calendar to help Jennifer figure out the date of the "Mystery Math Ball."

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Clues:

1. The date is not a prime number.
2. The date is not a multiple of 4 or 5.
3. The date is a multiple of 2.
4. The date is divisible by 6.
5. If you have eliminated dates correctly, you should have two possible dates left. The date of the "Mystery Math Ball" is the greater number of those two dates.

When is the "Mystery Math Ball?" _____

Name _____ Date _____

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Mystery Place

Next, Jennifer must figure out where the "Mystery Math Ball" will be held. Can you help her? Use the clues provided to figure out the 5-digit house number.

Clues:

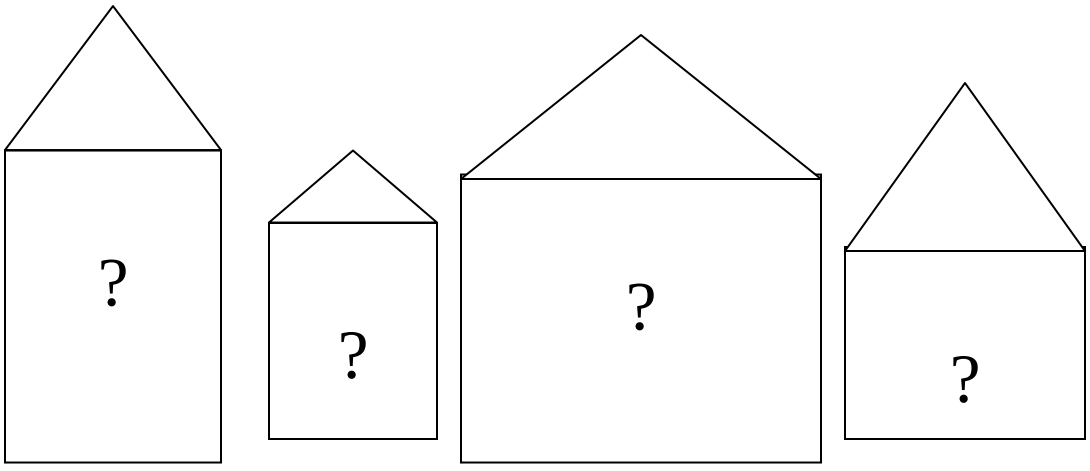
1. The house number is an even number.

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 digit and the one's digit.

4. The ten's digit is the greatest even digit.

5. The sum of the digits in the ten thousand's place and the thousand's place is equal to the digit in the ten's place.



Where is the "Mystery Math Ball?"____ ____ _____ _____ _____

Name _____ Date _____

The Mystery Math Ball! A Logic-based Mystery

Mystery Host

Jennifer's last task is to figure out who is hosting the "Mystery Math Ball" so that she can contact the host for final details about the party. She knows the host is 16 years old and is one of the following people - John, Joe, Jill, Janet, or Jim. She knows that the these five people's ages range from 14- to 18-years old. Use the deductive reasoning chart and the clues provided to help Jennifer figure out who is hosting the "Mystery Math Ball."

	1817	16	15	14	
John					
Joe					
Jill					
Janet					
Jim					

Clues:

1. Jill is 3 years younger than John.
2. Jim is younger than Joe.
3. Janet is older than Jill.
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.

Who is the host of the "Mystery Math Ball?" _____

Name _____ Date _____

The Mystery Math Ball! A Logic-based Mystery

Answer Key

Mystery Date (the 18th)

Clue 1 eliminates the prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, and 31
Clue 2 eliminates multiples of 4 and 5: 4, 8, 10, 12, 15, 16, 20, 24, 25, 28, and 30
Clue 3 eliminates odd numbers: 1, 9, 21, and 27
Clue 4 eliminates remaining numbers that are not divisible by 6: 14, 18, 22, and 26
Clue 5 eliminates the number 6, which means the Mystery Date is the 18th.

Mystery Place (House number is 17382)

Clue 1: One's digit must be 0, 2, 4, 6, or 8.
Clue 2: One's digit must be 2 and hundred's digit must be 3. The other possible combination, 1 and 6, does not have a sum of 5.
Clue 3: Digit in the ten thousand's place is 1. (3 – 2 = 1)
Clue 4: Ten's digit is 8.
Clue 5: Digit in the thousand's place is 7. (1 + 7 = 8)

Mystery Host (Joe)

Clue 1: Jill is not 18, 17, or 16, since she is 3 years younger than John. John, likewise, is not 14, 15, or 16, since he is 3 years older than Jill.
Clue 2: Jim is not 18. Joe is not 14.
Clue 3: Janet is not 14.
Clue 4: Jill is not 15. We now know that Jill is 14-years old, which means all the others can be eliminated as 14-years old.
Clue 5: This clue is redundant, but Jim is not 14-years old.
Clue 6: John is 17 years old.
Clue 7: Janet is 18 and Joe is 16. If Janet is 16, then Joe is 14, but we have already concluded that Jill is the 14-year old.