

**Additional Practice****Investigation 3****Prime Time**

1. On Saturdays, the #14 bus makes roundtrips between Susan's school and the mall, and the #11 bus makes roundtrips between the mall and the museum. Next Saturday, Susan wants to take the bus from her school to the museum. A #14 bus leaves Susan's school every 15 minutes, beginning at 7 A.M. It takes the bus 30 minutes to travel between the school and the mall. A #11 bus leaves the mall every 12 minutes, beginning at 7 A.M.
  - a. If Susan gets on the #14 at 9:30 A.M., how long will she have to wait at the mall for a #11 bus? Explain your reasoning.
  - b. If Susan gets on the #11 bus at the museum and arrives at the mall at 11:48 A.M., how long will she have to wait for the #14 bus? Explain your reasoning.
  - c. At what times between 9 A.M. and noon are the #14 and #11 buses at the mall at the same time? Explain your reasoning.
2. Kyong has built two rectangles. Each has a width of 7 tiles.
  - a. If each rectangle is made with an even number of tiles that is greater than 40 but less than 60, how many tiles does it take to make each rectangle? Explain your reasoning.
  - b. What is the length of each of Kyong's rectangles? Explain your reasoning.
  - c. Without changing the number of tiles used to make either rectangle, Kyong rearranges the tiles of each rectangle into different rectangles. What is a possibility for the length and width of each of Kyong's new rectangles? Explain your reasoning.

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3. Jack plays on a basketball team after school (or on the weekend) every third day of the month. He babysits his younger brother after school every seventh day of the month. How many times during a 30-day month, if any, will Jack have a conflict between basketball and babysitting? Explain your reasoning.
4. Suppose you have two different numbers which are both prime.
- What is the least common multiple of the numbers? Explain your reasoning.
  - What is the greatest common factor? Explain your reasoning.
5. Find the least common multiple and the greatest common factor for each pair of numbers:
- 8 and 12
  - 7 and 15
  - 11 and 17
  - 36 and 108
- e. For which pairs in parts (a)–(d) is the least common multiple the product of the two numbers? Why is this so? What is special about the numbers in these pairs?
6. Find the greatest common factor of each pair of numbers:
- 4 and 12
  - 5 and 15
  - 10 and 40
  - 25 and 75
- e. When is the greatest common factor of two numbers one of the two numbers? Explain your reasoning.