Problem Solving
Least Common Multiple

Use the table to answer the questions.

1. You want to have an equal number of plastic cups and paper plates. What is the least number of packs of each you can buy?

— _____ _____

_____

2. You want to invite 48 people to a party. What is the least number of packs of invitations and napkins you should buy to have one for each person and none left over?

— _____

— _____ _____

Party Supplies

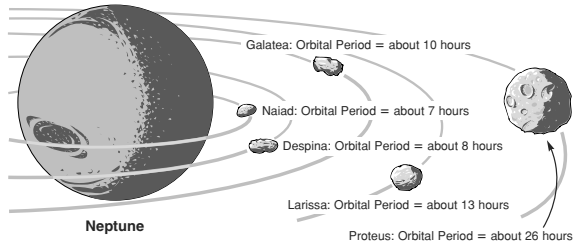| Item	Number per Pack
Invitations	12
Balloons	30
Paper plates	10
Paper napkins	24
Plastic cups	15
Noise makers	5

Circle the letter of the correct answer.

3. You want to have an equal number of noisemakers and balloons at your party. What is the least number of packs of each you can buy?

A 1 pack of balloons and 1 pack of noise makers

B 1 pack of balloons and 2 packs of noise makers

C 1 pack of balloons and 6 packs of noise makers

D 6 packs of balloons and 1 pack of noise makers

4. You bought an equal number of packs of plates and cups so that each of your 20 guests would have 3 cups and 2 plates. How many packs of each item did you buy?

F 1 pack of cups and 1 pack of plates

G 3 packs of cups and 4 packs of plates

H 4 packs of cups and 3 packs of plates

J 4 packs of cups and 4 packs of plates

5. The LCM for three items listed in the table is 60 packs. Which of the following are those three items?

A balloons, plates, noise makers

B noise makers, invitations, balloons

C napkins, cups, plates

D balloons, napkins, plates

6. To have one of each item for 120 party guests, you buy 10 packs of one item and 24 packs of the other. What are those two items?

F plates and invitations

G balloons and cups

H napkins and plates

J invitations and noise makers

Holt Mathematics

Challenge
Moons Over Neptune

We measure one month by our moon's orbital period, or the time it takes the Moon to travel once around Earth, which is about 30 days. But what if you lived on Neptune? It has 8 moons! How could you pick just one moon to measure your months? One possible solution is to calculate one month based on when two of Neptune's moons are in conjunction at some arbitrary starting point in the sky, or appear to be in the same place in the sky. The diagram below shows some of the moons you could use to measure your months on Neptune.

Galatea: Orbital Period = about 10 hours

Naiad: Orbital Period = about 7 hours

Despina: Orbital Period = about 8 hours

Larissa: Orbital Period = about 13 hours

Proteus: Orbital Period = about 26 hours

Neptune

Use the diagram and least common multiples to complete the chart below. For each row, write how long your month on Neptune would be if you used those moons in conjunction as the length of one month.

Neptune Moons to Use	Length of One Neptune Month
Naiad and Despina	about 56 hours
Larissa and Proteus	about 26 hours
Galatea and Despina	about 40 hours
Despina and Proteus	about 104 hours

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Problem Solving
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Party Supplies	
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Plastic cups	15
Noise makers	5

1. You want to have an equal number of plastic cups and paper plates. What is the least number of packs of each you can buy?

   3 packs of plates and

   2 packs of cups

2. You want to invite 48 people to a party. What is the least number of packs of invitations and napkins you should buy to have one for each person and none left over?

   4 packs of invitations and

   2 packs of napkins

Circle the letter of the correct answer.

3. You want to have an equal number of noisemakers and balloons at your party. What is the least number of packs of each you can buy?
   A 1 pack of balloons and 1 pack of noise makers
   B 1 pack of balloons and 2 packs of noise makers
   Ⓒ 1 pack of balloons and 6 packs of noise makers
   D 6 packs of balloons and 1 pack of noise makers

4. You bought an equal number of packs of plates and cups so that each of your 20 guests would have 3 cups and 2 plates. How many packs of each item did you buy?
   F 1 pack of cups and 1 pack of plates
   G 3 packs of cups and 4 packs of plates
   H 4 packs of cups and 3 packs of plates
   Ⓙ 4 packs of cups and 4 packs of plates

5. The LCM for three items listed in the table is 60 packs. Which of the following are those three items?
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   F plates and invitations
   G balloons and cups
   H napkins and plates
   Ⓙ invitations and noise makers

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Reading Strategies
Understanding Vocabulary

Least means the smallest in size. The person with the least amount of homework has the smallest amount of work to do.

Common means shared. You may have classes in common with some of your friends.

A **multiple** is the answer to a multiplication problem.

The multiples of 5 are the answers to multiplying numbers by 5.

$1 \times 5 = 5$ $2 \times 5 = 10$ $3 \times 5 = 15$ $4 \times 5 = 20$

The **least common multiple** is the smallest multiple two numbers have in common.

Follow the steps for finding the least common multiple of 5 and 10.

1. List the first 10 multiples of 5.

   5, 10, 15, 20, 25, 30, 35, 40, 45, 50

2. List the first 5 multiples of 10.

   10, 20, 30, 40, 50

3. What multiples do 5 and 10 have in common?

   10, 20, 30, 40, 50

4. Write the smallest multiple that 5 and 10 have in common. **10**

5. What is the least common multiple of 5 and 10? **10**

6. To find the least common multiple of two numbers, what is the first thing you should do?

   List the multiples of both numbers.

7. What should you do next?

   Compare the multiples they have in common.

8. How do you know which of the common multiples is the least common multiple?
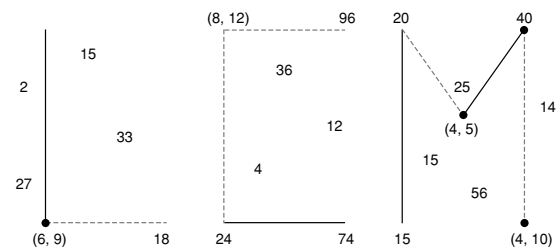
   It is the smallest multiple.

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Puzzles, Twisters & Teasers
Math Abbreviation

Draw a line from each pair of numbers to common multiples for the numbers. Sometimes you will need to draw two lines from the same pair of numbers.

When you have finished, you will see a famous math abbreviation.

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