

3.5 Choosing Between GCF and LCM

Chapter 3: Factors, Multiples, and Fractions

Name: _____

Date: _____

Class/Period: _____

Problem 3.65 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

A theater has 135 orchestra seats and 243 general-admission seats. Every row must contain the same greatest possible number of seats. How many seats are in each row?

Use the ladder method.

Problem 3.66 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

Two traffic lights change every 20 seconds and every 45 seconds. If they change together now, when will they next change together?

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Problem 3.67 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

Black socks come in packs of 10, and white socks come in packs of 6. What is the least equal number of each color that can be purchased?

Problem 3.68 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

Carley has 216 pencils and 120 buttons. What is the greatest number of classrooms that can receive identical shares with no leftovers?

Use the ladder method.

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Problem 3.69 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

Plates come in packs of 24, bowls in packs of 16, and cups in packs of 18. Find the least equal number of each item and the number of packages needed.

Use the ladder method.

Problem 3.70 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

A hotel has 160 bath towels and 64 washcloths. It sends identical supplies to the greatest possible number of rooms. How many rooms receive supplies, and what does each room get?

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Problem 3.71 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

One bell rings every 18 minutes, and another rings every 30 minutes. Both ring at 9:00 a.m. When do they ring together again?

Problem 3.72 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

A baker has 72 chocolate cookies and 96 sugar cookies. She places them into the greatest possible number of identical trays. Find the number of trays and the contents of each tray.

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Problem 3.73 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

Three buses arrive every 42, 70, and 90 minutes. They arrive together at noon. After how many minutes will they next arrive together?

Use the ladder method.

Problem 3.74 Directions:

For each problem:

1. State whether the GCF or LCM is needed.
2. Explain what the answer represents.
3. Solve using an efficient method. Use the ladder method when factor lists would be cumbersome.

A warehouse has 252 notebooks, 180 folders, and 144 pens. It makes the greatest possible number of identical supply boxes with no items left over.

Use the ladder method to find the number of boxes and the contents of each box.

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Problem 3.75 A student says, "If the answer should be larger than the given numbers, use LCM. If it should be smaller, use GCF."
Is this a complete decision rule? Explain what important mathematical relationship is missing.

Problem 3.77 A student begins a GCF ladder for 84 and 126 by writing 5 on the left.
Is this a legal step? Explain.

Problem 3.76 A student uses the GCF to find when two trains running every 24 minutes and every 36 minutes will next leave together.
Is the student correct? Why or why not?

Problem 3.78 A student completes an LCM ladder and multiplies only the prime factors on the left.
Is this always correct? Explain what must be included in an LCM ladder calculation.