Name: _____ Date: _____

The Great Pizza Caper

Mixed Numbers and Improper Fractions

Max likes to invite some of his friends to share some pizzas equally. Every time he orders the pizza, someone in his family eats some of it before he can decide how many of his friends he can invite! Laurel says she can use mixed numbers and improper fractions to help Max quickly decide how many friends he can invite. Study each of the situations given below and show how Laurel helped Max. (Hint: Use the a , b/c , and $\frac{a\ b/c}{d/c}$ keys on your calculator!)

Situation 1 Max ordered 4 pizzas, and his brother at $\frac{2}{3}$ of one of them. How many friends can Max invite to share the remaining pizza if each friend eats $\frac{1}{3}$ of a pizza?

Situation 2 Max ordered 5 pizzas and his sisters ate $1\frac{1}{4}$ pizzas. How many friends can Max invite to share the remaining pizza if each friend eats $\frac{1}{4}$ of a pizza?

Situation 3 Max ordered 6 pizzas, each cut into 16 pieces, and his cousins ate 10 pieces. How many friends can Max invite to share the remaining pizza if each friend eats $\frac{1}{8}$ of a pizza?

Thinking Cap

What must be true about the number of pieces for each pizza that are cut into in Situation 1 and Situation 2? Explain your answers.

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Topic: Mixed Numbers and Improper Fractions

Objective: To use the calculator to solve problems that involve changing mixed numbers to improper fractions.

NCTM Standards: Problem Solving, Communication, Number and Number Relationships, Number Systems and Number Theory

Mixed Numbers and Improper Fractions

Using the Activity

Students use the calculator in this activity to first subtract a fraction or a mixed number from a whole number. Then they use the calculator to change the mixed number answers to improper fractions to determine the number of friends Max can invite.

- The [b/c] key can be used to enter fractions.
- The [a] and [b/c] keys can be used to enter mixed numbers.
- The [a b/c ⇄ d/c] key can be used to change a mixed number to an improper fraction.

  Example For Situation 1, 4 [−] 2 [b/c] 3 [=] $3\frac{1}{3}$. Press the [a b/c ⇄ d/c] key to change the mixed number to $\frac{10}{3}$. Since 10 x $\frac{1}{3} = \frac{10}{3}$, Max can invite 10 friends if he does not eat any.

Assessment Encourage students to work backward to check their answers. To check the example, use the [a b/c ⇄ d/c] key to change $\frac{10}{3}$ to a mixed number. Then add $\frac{10}{3}$. The answer should be 4.

Answers

Situation 1: See solution in the example above.

Situation 2: 5 [−] 1 [a] 1 [b/c] 4 [=] $3\frac{3}{4}$ *[a b/c ⇄ d/c]* $\frac{15}{4}$ *Max can invite 15 friends. If he eats some pizza, he can invite 14.*

Situation 3: Max's cousins ate $\frac{10}{16}$ *of the pizza, so 6 [−] 10 [b/c] 16 [=]* $5\frac{3}{8}$ *[a b/c ⇄ d/c]* $\frac{43}{8}$ *Max can invite 43 friends. If he eats some pizza, he can invite 42 friends.*

Thinking Cap

As an extension, students use what they know about Situation 1 and Situation 2 to determine the possible number of pieces each pizza can be cut into.

Answers

Situation 1: The pizza can be cut into any multiple of 3 pieces since all multiples of 3 can be divided into thirds.

Situation 2: The pizza can be cut into any multiple of 4 pieces since all multiples of 4 can be divided into fourths.