

Math Domain

- | | | |
|---|--------------------------------------|---|
| <input checked="" type="checkbox"/> Number/Quantity | <input type="checkbox"/> Shape/Space | <input type="checkbox"/> Function/Pattern |
| <input type="checkbox"/> Chance/Data | <input type="checkbox"/> Arrangement | |

Math Actions (possible weights: 0 through 4)

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|--|--|
| <input type="checkbox"/> 3 Modeling/Formulating | <input type="checkbox"/> 3 Manipulating/Transforming |
| <input type="checkbox"/> 3 Inferring/Drawing Conclusions | <input type="checkbox"/> 3 Communicating |

Math Big Ideas

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|---|---|--|
| <input type="checkbox"/> Scale | <input type="checkbox"/> Reference Frame | <input type="checkbox"/> Representation |
| <input type="checkbox"/> Continuity | <input type="checkbox"/> Boundedness | <input type="checkbox"/> Invariance/Symmetry |
| <input checked="" type="checkbox"/> Equivalence | <input type="checkbox"/> General/Particular | <input type="checkbox"/> Contradiction |
| <input type="checkbox"/> Use of Limits | <input type="checkbox"/> Approximation | <input type="checkbox"/> Other |

1. $1/12$ of a tog = 5 fleeps, or 1 flickle
 $1/3$ of a tog = 20 fleeps, or 1 flerd
 $1/2$ of a tog = 30 fleeps, or 1 flaf

2. **a.** There are several combinations that would equal 75 fleeps. Students may use a combination of togs (paper money) and fleeps (coins) to determine their answer. One possible combination is: 1 tog (60), 1 flime (10), and 1 flickle (5), totaling 75 fleeps.
b. The second part of the question asks the students to use coins only. Again, there are several correct combinations to this question; one would be 2 flalfs (30 a piece), 1 flime (10) and 1 flickle (5), totally 75 fleeps in coins.

3. **a.** Students should realize that each tog is worth 60 fleeps, therefore two togs would equal 120 fleeps. If the student pays 120 fleeps for a 75 fleep soda, they would receive 45 fleeps back in change.
b. The least number of coins a student could receive back in change is three. Again, there are a few ways to achieve this, but one combination might be 2 flerds (20 fleeps each) and one flickle (5 fleeps), which totals 45 fleeps and uses only three coins.

4. **a.** You could be holding two flickles (worth a combined total of 10) and your mother could be holding one flime (also worth 10).
b. You could be holding two flimes (worth a combined total of 20) and your mother could be holding one flerd (also worth 20).

| | partial level (1 or 2) | full level (3) |
|---|--|---|
| Modeling/ Formulating (weight: 3) | Student formulates a strategy with which to represent some of the given information. | Student formulates a strategy which takes into account all of the given information. |
| Transforming/ Manipulating (weight: 3) | <p>Student correctly computes some of the fractional parts in 1.</p> <p>Student correctly computes some of the combination possibilities in 2 and 3.</p> <p>Student does not respond to 3a and/or 3b correctly.</p> | <p>Student correctly computes all of the fractional parts in 1.</p> <p>Student correctly computes combinations for questions 2 and 3.</p> <p>Students responds correctly to 3a and 3b.</p> |
| Inferring/ Drawing Conclusions (weight: 3) | Student provides partial reasoning in either question 4a or 4b , and/or creates a combination that is not reasonable. | Student provides solid reasoning in questions 4a and 4b and creates a combination that fits the given constraints. |
| Communicating (weight: 3) | Student partially communicates a response to 3b , 4a , and/or 4b . | Student fully explains their thinking in 3b , 4a , and 4b . |