



## 6.NS.3 MOVIE TICKETS

### PERSONAL FINANCE BIG IDEAS TAUGHT IN THIS TASK:

- Inflation

### TASK

Hallie is in 6th grade and she can buy movie tickets for \$8.25. Hallie's father was in 6th grade in 1987 when movie tickets cost \$3.75.

When he turned 12, Hallie's father was given \$20.00 so he could take some friends to the movies. How many movie tickets could he buy with this money?

How many movie tickets can Hallie buy for \$20.00?

On Hallie's 12th birthday, her father said,

*When I turned 12, my dad gave me \$20 so I could go with three of my friends to the movies and buy a large popcorn. I'm going to give you some money so you can take three of your friends to the movies and buy a large popcorn.*

How much money do you think her father should give her?

## COMMENTARY

The purpose of this task is for students to solve problems involving decimals in a context involving a concept that supports financial literacy, namely inflation. **Inflation** is a sustained increase in the average price level. In this task, students are asked to compare the buying power of \$20 in 1987 and 2012, at least with respect to movie tickets.

This task also engages students in Standard for Mathematical Practice 4, Model with mathematics. Specifically, students need to either make the assumption that the price of popcorn increased at the same rate as movie tickets, or they need to do some research into the current cost of a large popcorn in order to answer the last question. It is a variation on another task 4.OA Carnival Tickets that also addresses inflation in a way that is accessible to 4th graders.

This task is part of a set collaboratively developed by *Money as You Learn*, an initiative inspired by recommendations of the President's Advisory Council on Financial Capability, and Illustrative Mathematics. Integrating essential financial literacy concepts into the teaching of the Common Core State Standards can strengthen teaching of the Common Core and expose students to knowledge and skills they need to become financially capable young adults. A mapping of essential personal finance concepts and skills against the Common Core State Standards as well as additional tasks and texts will be available at [www.moneyasyoulearn.org](http://www.moneyasyoulearn.org). This task and additional personal finance-related mathematics tasks are available at [www.illustrativemathematics.org](http://www.illustrativemathematics.org) and are tagged "financial literacy."

## SOLUTION

Students should be able to fluently multiply and divide decimals. The details of the algorithms for multiplying and dividing are not shown here.

A. To find out how many tickets he could buy with \$20, we divide 20 by the price of a single ticket:

$$20 \div 3.75 = 5.3$$

Since it's not possible to purchase a part of a ticket, this means that he could buy 5 tickets and will have some money left over. Since

$$5 \times 3.75 = 18.75$$

and

$$20 - 18.75 = 1.25$$

her father could buy 5 movie tickets in 1987 with \$20, and he would have \$1.25 left over.

B. As before, to find out how many tickets she could buy with \$20, we divide 20 by the price of a single ticket:

$$20 \div 8.25 = 2.42$$

As before, she can't buy part of a ticket. Furthermore,

$$2 \times 8.25 = 16.50$$

and

$$20 - 16.50 = 3.50$$

So Hallie can buy 2 movie tickets if she has \$20, and she will have \$3.50 left over.

C. Since  $4 \times 3.75 = 15$ , a large popcorn had to cost \$5.00 or less if her father bought it with the change from buying the tickets. Hallie's movie tickets cost  $8.25 \div 3.75 = 2.2$  times as much as movie tickets cost in 1987. Assuming the price of popcorn increased at the same rate, and since  $2.2 \times 5 = 11$ , she should be able to buy a large popcorn for \$11.00. Four tickets cost  $4 \times 8.25 = 33$  dollars. With these assumptions, Hallie's father should give her at least \$44.00.

## SOLUTION: ALTERNATIVE APPROACH TO PART (C)

If you go online and look up the cost of a large popcorn at a movie theater, the values range around \$10 to \$12 (possibly more or less depending on the location). This means the total cost of four tickets and a large popcorn is somewhere near \$45, give or take a few dollars. Often tax is included in the cost of the tickets, but it is not always included in the cost of concessions. Depending on the theater, the total cost may be a bit higher if tax is applied.