# 7.RP Stock Swaps, Variation 3

**Alignments to Content Standards:**   7.RP.A

## Task

Microsoft Corp. has made an offer to acquire 1.5 million shares of Apple Corp. worth $374
share. They offered Apple 10 million shares of Microsoft worth $25 per share, but they nee
make up the difference with other shares. They have other shares worth $28 per share. Hc
many of the $28 shares (to the nearest share) do they also have to offer to make an even s

## IM Commentary

This is a multi-step problem since it requires more than two steps no matter how it is solve
The dollar value of the Apple stock must be determined. The total amount of money Micro
offering (for the $25 shares) must be determined. The difference must be found and then
converted to shares worth $28 per share.

This problem is not scaffolded for the student, but each step is straightforward and shoulc
follow from the previous with a careful reading of the problem.

Teachers should be aware that the context of stock purchase may not be familiar to 7th gr
The context should be explained to students if needed.

## Solutions

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### Solution: Computing the difference

The value of the Apple shares is 1.5 million times $374, or $561 million, i.e.

$$\frac{374 \text{ dollars}}{\text{share}} \times 1.5 \text{ million shares} = 561 \text{ million dollars}.$$

Microsoft offers 10 million shares at $25 per share. This is worth

$$10{,}000{,}000 \text{ shares} \times \frac{25 \text{ dollars}}{\text{share}} = 250{,}000{,}000 \text{ dollars}$$

or

$$10 \text{ million shares} \times \frac{25 \text{ dollars}}{\text{share}} = 250 \text{ million dollars}.$$

They still need to offer $561 million minus $250 million, i.e. $311 million.
To make up the difference, at $28 per share, they need the following number of shares:

$$311{,}000{,}000 \text{ dollars} \times \frac{\text{share}}{28 \text{ dollars}} = 11{,}107{,}143 \text{ shares}.$$

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## Solution: Algebraic approach

This problem can also be solved with algebra. This requires setting up an equation whose ⌐
can be related to the steps in the solution above.

$$\frac{374 \text{ dollars}}{\text{share}} \times 1{,}500{,}000 \text{ shares} = 10{,}000{,}000 \text{ shares} \times \frac{25 \text{ dollars}}{\text{share}} + x \text{ shares} \times 28$$

Or, after canceling shares and dividing by dollars,

$$374 \times 1{,}500{,}000 = 10{,}000{,}000 \times 25 + 28x.$$

Solving, we get:

$$x = \frac{374 \times 1{,}500{,}000 - 10{,}000{,}000 \times 25}{28}.$$

There are no units for $x$ because it is the NUMBER of shares.