

CHECK YOUR UNDERSTANDING

Expressions and Equivalence

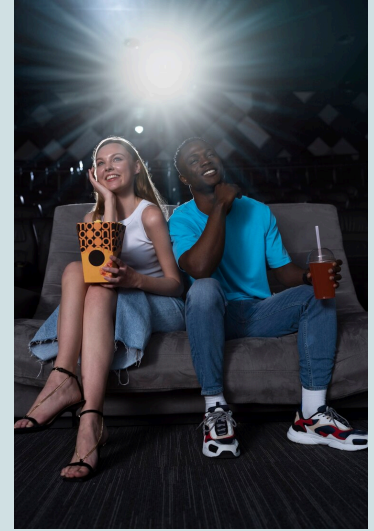
Building expressions can help a lot with managing a business. Here is information about a local movie theater:

INCOME:

- \$12 per customer for ticket sales
- \$6 per customer for concession sales

EXPENSES:

- \$3 per customer is paid back to the movie studios
- Purchasing food and drink for the concession stand is about half of total concession sales
- Rent, utilities, and staffing costs total \$15,000 each month



1. Find the monthly income, expenses, and profit for a month when the theater has ...
 - a. ... 500 customers.
 - b. ... 613 customers.

2. Write expressions for monthly income, expenses, and profit for the movie theater based on how many customers (c) they have that month.

3. (+) Use the template (<https://tinyurl.com/MtMmoviemanager>) to create a spreadsheet that will calculate income, expenses, and profit. Experiment with the spreadsheet to find out:
 - a. How many customers does the theater need each month in order to 'break even'?
 - b. How does that change if they raise ticket prices to \$15?

3. Which, if any, of these expressions are equivalent to each other? How do you know?

i. $2x + 8$ ii. $6x - 2(2x + 8)$ iii. $\frac{10x+40}{5}$ iv. $2(x + 4)$