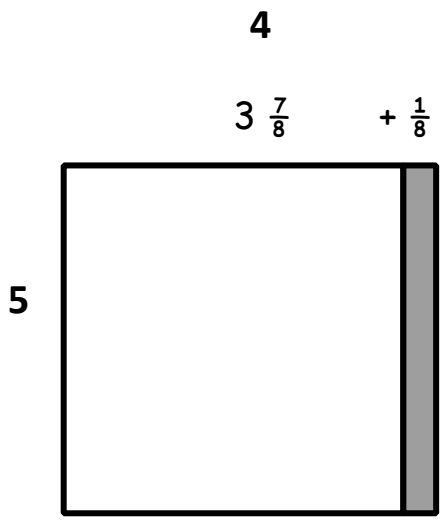
Using Compensation to Multiply Fractions

What it is: This strategy involves changing one of the numbers to a more convenient number, tracking how much that changed the answer, and compensating for that change.

Let's look at $3\frac{7}{8} \times 5$

What is sounds like: I will change 3 ⅞ to 4. Now I have 4×5. That is a basic fact. The answer is 20. That answer is $\frac{1}{8} \times 5$ too much, so I have to compensate by subtracting five eighths: $20 - \frac{5}{8} = 19\frac{3}{8}$

What is looks like: Compensation can be solved using an area model or a series of equations:



$4 \times 5 = 20$

$\frac{1}{8} \times 5 = \frac{5}{8}$

$20 - \frac{5}{8} = 19\frac{3}{8}$

When It's Useful: Compensation is a useful strategy when a fraction or mixed number is very close to the next whole number.

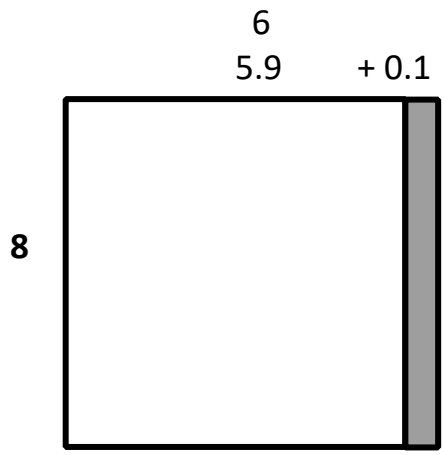
Using Compensation to Multiply Decimals

What it is: This strategy involves changing one of the numbers to a more convenient number, tracking how much that changed the answer, and compensating for that change.

Let's look at 5.9 x 8

What is sounds like: I will change 5.9 to 6. Now I have 6 × 8. That is a basic fact. The answer is 48. That answer is 0.1 × 8 too much, so I have to compensate. 48 – 0.8 = 47.2.

What is looks like: Compensation can be solved using an area model or a series of equations:



6 x 8 = 48

0.1 x 8 = 0.8

48 – 0.8 = 47.2

When It's Useful: Compensation is a useful strategy when a fraction or mixed number is very close to the next whole number.