

Multiplication Strategy: Doubling and Halving

We can simplify some multiplication problems by doubling one factor and halving the other factor.

Example: $5 \times 16 = 10 \times 8 = 80$ or $5 \times 16 = 10 \times 8 = 20 \times 4 = 80$

1. Use the strategy of doubling one factor and halving the other to simplify and solve the following problems.
 - a) 5×68
 - b) 3×16
 - c) 14×30
 - d) 18×40
 - e) 35×20
 - f) 25×16
 - g) 50×24
 - h) 500×28
2. Does this strategy always work? Explain when the strategy of doubling and halving is useful to simplify a multiplication problem.
3. Use square tiles to make rectangular arrays for 4×6 and 6×8 . Model the doubling and halving process using the tiles. Explain why this strategy works.

Multiplication Strategy: Doubling and Halving

1. Use the strategy of doubling one factor and halving the other to change each problem below to one with an equivalent product that is easy to solve mentally.
 - a) I baked 16 trays of cookies. Each tray had 35 cookies. How many cookies did I bake?
 - b) Mr. Jones bought 60 boxes of pencils for his class. If each box contained 50 pencils, how many pencils were there in all?
 - c) A pet store has 15 fish tanks. Each fish tank contains 18 goldfish. What is the total number of goldfish?
 - d) If Tim's pet cat drinks 45ml of milk every day, how much milk will it drink in 12 days?
2. Write your own multiplication word problem that could be solved using the doubling and halving strategy.