

Grouping for Easy Math Answer Key

1. Rows of Chairs - There are 4 sections. Each section has 3 rows. Each row has 6 chairs. Total chairs = $4 \times 3 \times 6$

a) Two associative property equations: $(4 \times 3) \times 6$ $4 \times (3 \times 6)$

b) Solve both: $(4 \times 3) \times 6 = 12 \times 6 = 72$ $4 \times (3 \times 6) = 4 \times 18 = 72$

Both give 72 chairs total.

2. Juice Bottles - 5 crates, 8 boxes per crate, 4 bottles per box.

Total bottles = $5 \times 8 \times 4$

a) Two equations: $(5 \times 8) \times 4$ $5 \times (8 \times 4)$

b) Solve both: $(5 \times 8) \times 4 = 40 \times 4 = 160$ $5 \times (8 \times 4) = 5 \times 32 = 160$

Both give 160 bottles.

c) Which grouping is easier and why?

$5 \times (8 \times 4)$ is easier because $8 \times 4 = 32$ is quick, and $5 \times 32 = 160$ can be done as $5 \times 30 + 5 \times 2$.

(If a student chose $(5 \times 8) \times 4$, that's also reasonable because $5 \times 8 = 40$ is simple. Either answer is acceptable if they justify it.)

3. Lunch Trays - 6 tables, 4 trays per table, 5 meals per tray.

Total meals = $6 \times 4 \times 5$

a) One associative property equation (both forms):

$(6 \times 4) \times 5$ $6 \times (4 \times 5)$

b) Solve both: $(6 \times 4) \times 5 = 24 \times 5 = 120$ $6 \times (4 \times 5) = 6 \times 20 = 120$

Total meals: 120

4. Choose the grouping that makes the math simpler.

a) $50 + 75 + 25$

Option 1: $(50 + 75) + 25 = 125 + 25 = 150$

Option 2: $50 + (75 + 25) = 50 + 100 = 150$

Easier grouping: $50 + (75 + 25)$, because $75 + 25 = 100$ is a clean number.

b) $2 \times 5 \times 50$

Option 1: $(2 \times 5) \times 50 = 10 \times 50 = 500$

Option 2: $2 \times (5 \times 50) = 2 \times 250 = 500$

Easier grouping: $(2 \times 5) \times 50$, because $2 \times 5 = 10$ and $10 \times 50 = 500$ is very quick.