Vocabulary Review Sheet

Lesson – PEMDAS and Family Budget Fairness

How to Use

- Review each term before your quiz.

- Study the **math**, **real-life**, and **fairness** examples to understand how each part of PEMDAS connects to family budgeting.

- Remember: the correct *order of operations* ensures your math — and your idea of fairness — adds up right!

- Keep this page in your *Equity in Numbers Student Journal* for review and self-checks.

PEMDAS

- **Definition:** The order of operations used to solve math problems: **Parentheses, Exponents, Multiplication, Division, Addition, Subtraction.**

- **Math Examples:**

  - $(2 + 3) \times 4 = 20$

  - $2 + 3 \times 4 = 14$

  - $(10 - 3)^2 = 49$

- **Real-Life Example:** When budgeting, you calculate taxes and savings (inside parentheses) before adding or subtracting expenses.

- **Fairness Example:** Following PEMDAS shows how fair comparisons depend on doing math in the right order — just like fairness depends on following fair steps.

Parentheses

- **Definition:** Symbols used to group parts of an equation that must be solved first.

- **Math Examples:**

  - $(2{,}800 \times 0.20) = 560$

- o (3,000 − 1,200) = 1,800

- o (2,800 − (2,800 × 0.20)) = 2,240

- **Real-Life Example:** Parentheses help calculate taxes or savings before other expenses.

- **Fairness Example:** In budgeting, grouping steps fairly ensures everyone's income and expenses are treated the same way.

Multiplication

- **Definition:** Repeated addition; in budgets, it's used to calculate percentages like taxes or savings.

- **Math Examples:**

    - o 2,800 × 0.20 = 560 (taxes)

    - o 1,240 × 0.10 = 124 (savings)

    - o 900 × 0.15 = 135 (groceries)

- **Real-Life Example:** Families multiply income by tax rates or savings percentages.

- **Fairness Example:** Multiplying helps ensure each family's contribution or savings is proportional — an important fairness principle.

Division

- **Definition:** Splitting a total into equal parts or finding how many times one number fits into another.

- **Math Examples:**

    - o 2,800 ÷ 4 = 700

    - o 1,000 ÷ 5 = 200

    - o 890 ÷ 10 = 89

- **Real-Life Example:** Division helps families split costs like rent or groceries equally.

- **Fairness Example:** Sharing expenses evenly shows how division supports equality within families.

Addition

- **Definition:** Combining numbers to find a total.

- **Math Examples:**

  - 350 + 1,000 = 1,350

  - 560 + 1,240 = 1,800

  - 890 + 89 = 979

- **Real-Life Example:** Families add bills to see total monthly expenses.

- **Fairness Example:** Addition helps families plan together — every contribution counts.

Subtraction

- **Definition:** Taking one number away from another to find what remains.

- **Math Examples:**

  - 2,800 − 560 = 2,240

  - 2,240 − 1,000 = 1,240

  - 1,240 − 350 − 89 = 801

- **Real-Life Example:** Subtraction shows how much money is left after paying bills and taxes.

- **Fairness Example:** Subtracting accurately prevents errors that could misrepresent a family's financial situation — a key fairness skill.

Budget

- **Definition:** A plan for how money will be earned, spent, and saved.

- **Math Examples:**

  - Income − (Taxes + Rent + Groceries + Savings) = Leftover

  - 2,800 − (560 + 1,000 + 350 + 89) = 801

    ○   3,000 − (540 + 1,200 + 400 + 86) = 774

- **Real-Life Example:** Families use budgets to decide what they can afford each month.

- **Fairness Example:** A fair budget considers everyone's needs — not just who earns the most.

Income

- **Definition:** The total money a person or family earns, usually each month or year.

- **Math Examples:**

    ○   2,800 − 560 = 2,240 after taxes

    ○   3,000 − 540 = 2,460 after taxes

    ○   2,200 − 330 = 1,870 after taxes

- **Real-Life Example:** Families earn income from jobs, side work, or benefits.

- **Fairness Example:** Math helps reveal how different income levels affect what families can save or afford.

Savings

- **Definition:** Money kept aside instead of spent.

- **Math Examples:**

    ○   890 × 0.10 = 89

    ○   2,460 × 0.08 = 196.80

    ○   1,870 × 0.05 = 93.50

- **Real-Life Example:** Families save a percentage of leftover income for emergencies or goals.

- **Fairness Example:** Fair savings opportunities depend on fair income — families with less income can't save as easily.

Fairness (in Budgeting)

- **Definition:** Treating families equitably by recognizing differences in income, expenses, and opportunity.

- **Math Examples:**

  - If Family A earns 3,000 and saves 10% → $300 saved

  - If Family B earns 2,200 and saves 10% → $220 saved

  - If Family C earns 2,200 but spends more on rent, savings shrink further

- **Real-Life Example:** Even when percentages are the same, total savings may differ.

- **Fairness Example:** Understanding how math connects to fairness helps us see that equality (same %) doesn't always mean equity (same outcome).

Summary of Math + Fairness Connections

Concept	Math Focus	Fairness Connection
PEMDAS	Follow correct order	Fair steps = fair results
Parentheses	Group parts logically	Ensures accurate, fair comparisons
Budget	Organize income and expenses	Reveals who can save or not
Savings	Calculate percentages	Shows equity gaps between families
Fairness	Apply math to real lives	Promotes understanding of inequality