

5th Grade Practice: Fractions, Exponents, and Distributive Law

Instructions

Solve each problem. For fraction word problems, **write your final answer as an improper fraction**. For exponent and distributive law problems, simplify fully.

A. Multi-Step Fraction Word Problems

1. A recipe uses $\frac{3}{4}$ cup of sugar per batch. You make $2\frac{1}{2}$ batches and then spill $\frac{1}{3}$ cup. How much sugar remains?
2. A runner completes $\frac{5}{6}$ mile in the morning and $\frac{3}{4}$ mile in the afternoon. How many miles total? Then subtract $\frac{1}{8}$ mile for a cool-down.
3. A tank is $\frac{2}{3}$ full. After using $\frac{1}{4}$ of the tank, you add $\frac{3}{8}$ of a tank. What fraction of the tank is full now?
4. A rope is $6\frac{1}{2}$ meters long. You cut off $\frac{5}{6}$ meter and then another $\frac{3}{4}$ meter. How much rope is left?
5. A baker uses $\frac{2}{5}$ of a bag of flour on Monday and $\frac{3}{10}$ on Tuesday. What fraction of the bag is left?
6. A class walked $\frac{7}{8}$ mile on Monday and $\frac{2}{3}$ mile on Tuesday. If the total goal is 2 miles, how much farther do they need to walk?
7. A jar has $1\frac{1}{3}$ liters of juice. You pour out $\frac{2}{5}$ liter and then add $\frac{3}{4}$ liter. How many liters are in the jar?
8. A cyclist rides $\frac{5}{12}$ hour at one speed and $\frac{7}{18}$ hour at another. What is the total time? Then divide by $\frac{2}{3}$ to find how many $\frac{2}{3}$ -hour blocks were ridden.
9. A container holds $\frac{3}{5}$ pound of nuts. You add $\frac{2}{3}$ pound, then split the total equally into 4 bags. How much is in each bag?
10. A water jug starts with $2\frac{1}{4}$ gallons. You use $\frac{3}{8}$ gallon, then refill $\frac{5}{6}$ gallon. How much water is in the jug?

B. Exponent Rules and Distributive Law

11. Simplify $2^4 \cdot 2^3$.
12. Simplify $\frac{5^7}{5^3}$.
13. Simplify $(3^2)^3$.
14. Simplify $4^0 + 2^5$.
15. Simplify $\frac{2^6 \cdot 3^2}{6^2}$.
16. Use the distributive law: $7(12 - 5)$.
17. Use the distributive law: $6(4 + 9)$.
18. Simplify $3(x + 5) - 2(x - 4)$.
19. Simplify $4(2x - 3) + 5(x + 1)$.
20. Simplify $2(a - 3) - 3(2a + 1)$.