Writing Numerical Expressions

Grade 5 Algebra Worksheet

Date:_____   Name:_____

LET'S MAKE LEARNING FUN

1. For each written phrase, write a numerical expression, and then solve.

Expression	Word Problem	Solution
a. $144 \times \dfrac{5}{12}$		
b. $9 - \left(\dfrac{5}{9} + \dfrac{1}{3} \right)$		
c. $\dfrac{3}{4} \times (36 + 12)$		

2. Solve the word problems.

a. There are 36 students in Mr. Jack's class. Of those students, $\frac{7}{12}$ played tag at recess, $\frac{1}{6}$ played kickball, and the rest played basketball. How many students in Mr. Jack's class played basketball?

b. Michelle brought 24 apples to school to share with her classmates. Of those apples, $\frac{2}{3}$ are red and the rest are green. Michelle's classmates ate $\frac{3}{4}$ of the red apples and $\frac{1}{2}$ of the green apples. How many apples are left?

Writing Numerical Expressions

Grade 5 Algebra Answer Sheet

1. Write and solve a word problem for each of the expressions below.

The formulation of the word problem may vary.

Expression	Word Problem	Solution
a. $144 \times \dfrac{5}{12}$	One hundred and forty-four $\times$ five-twelfths.	60
b. $9 - \left(\dfrac{5}{9} + \dfrac{1}{3}\right)$	The difference between 9 and the sum of $\frac{5}{9}$ and $\frac{1}{3}$.	$8\dfrac{1}{9}$
c. $\dfrac{3}{4} \times (36 + 12)$	Three-fourths times the sum of thirty-six and 12.	36

2. Solve the word problems.

a. There are 36 students in Mr. Jack's class. Of those students, $\frac{7}{12}$ played tag at recess, $\frac{1}{6}$ played kickball, and the rest played basketball. How many students in Mr. Jack's class played basketball?

Answer
9 students

Workings
Total number of students in Mr. Jack's class $= 36$ students.

Played at Recess: $\left(\dfrac{5}{12} \times 36\right)$ students $= \left(\dfrac{5}{\cancel{12}^{1}} \times \cancel{36}^{3}\right)$ students $= (5 \times 3)$ students $= 15$ students.

Played kickball: $\left(\dfrac{1}{3} \times 36\right)$ students $= \left(\dfrac{1}{\cancel{3}^{1}} \times \cancel{36}^{12}\right)$ students $= (1 \times 12)$ students $= 12$ students.

Played basketball: $[36 − (15 + 12)]$ students $= (36 - 27)$ students $=$ **9 students**.

Thus, we have **9 students** who played basketball in Mr. Jack's class.

b. Michelle brought 24 apples to school to share with her classmates. Of those apples, $\frac{2}{3}$ are red and the rest are green. Michelle's classmates ate $\frac{3}{4}$ of the red apples and $\frac{1}{2}$ of the green apples. How many apples are left?

Answer
8 apples

Workings
Total number of apples brought to school $= 24$ apples.

Total number of **red** apples $= \left(\frac{2}{3} \text{ of } 24\right) = \frac{2}{3} \times 24 = \frac{2}{3} \times 24^{8} = 2 \times 8 = 16$

Total number of **green** apples $= 24 − 16 = 8$

Number of **red** apples eaten $= \left(\frac{3}{4} \times 16\right) = \frac{3}{4} \times 16^{4} = 3 \times 4 = 12$

Number of **green** apples eaten $= \left(\frac{1}{2} \times 8\right) = \frac{8^{4}}{4} = 4$

Total apples left $= 24 − (12 + 4) = 24 − 16 =$ **8 apples**

Thus, there are **8 apples** left.