Finding Remainders:

A. If you are given an expression or function and asked to find the remainder after dividing a number or other function, there are simple ways of solving this quickly.

1. If given an expression, create new numbers by finding the remai nder of each term, then solve the simplified expression and find the remainder.

Ex [1] $(8 \times 5 + 6^2) \div 4$ has a remainder of _____.

a. Finding the remainder of term first, we can rewrite the expression as: $(0 \times 1 + 2^2) \div 4$.

b. Evaluating we get: $4 \div 4$, which has a remainder of 0.

c. The answer is 0.

Ex [2] $[29 \times (14 + 5)] \div 3$ has a remainder of _____.

a. Finding the remainder of each term first, we can rewrite the expression as: $2 \times (2 + 2) \div 3$.

b. Evaluating we get $8 \div 3$, which has a remain der of 2.

c. The answer is 2.

Ex [3] If $^{x}/_{8}$ has a remainder of 5, and $^{y}/_{8}$ has a remainder of 3, then $^{xy}/_{8}$ has a remainder of _____.

a. In this problem, we simply multiply 5 and 3 and find the remainder after it is divided by 8.

b. $5 \times 3 = 15$, which has a remainder of 7 after being divided by 8.

c. The answer is 7.

2. Sometimes, instead of an expression the problem gives functions. Simply solve the function in the denominator for 0 and plug this value into the function in the numerator.

Ex [4] $(3x^2 + 5x - 4) \div (x - 2)$ has a remainder of _____.

a. Solve: $x - 2 = 0$. We get $x = 2$.

b. Plugging 2 into the equation we get: $3(2^2) + 5(2) - 4$.

c. Evaluating we get: $12 + 7 - 4$ which equals 13.

d. The answer is 13.