

MATH 5: HOMEWORK 1

1. Find the following sums (without using a calculator, try to do it in the most efficient way.):

(a) $1 + 2 + 3 + \cdots + 49$

(b) $1 + 3 + 5 + \cdots + 49$

(c) $20 - 19 + 18 - 17 + \cdots - 3 + 2 - 1$

(d) $21 + 20 + 21 + 24 + 19 + 26$

(e) $7 \times 19 + 7 \times 11$

2. There are 4 short stories in the book. The first story is 12 pages long, which is $\frac{2}{3}$ of the second story. The third story is $\frac{5}{6}$ of the length of the first two stories together. How long is the fourth story, if four stories together occupy 64 pages in the book?

3. Compute

(a) $\frac{3}{14} \div \frac{7}{9}$ (b) $\frac{12}{33} \div \frac{55}{56}$ (c) $\frac{3}{14} \times \frac{7}{9}$ (d) $\frac{12}{33} \times \frac{55}{56}$

4. Compute (a) $\frac{14}{7} + \frac{45}{11}$ and (b) $\frac{7}{10} - \frac{1}{2}$.

5. Consider the product of all numbers from 1 to 25: $1 \times 2 \times \cdots \times 24 \times 25$. How many 3s will there be in the prime factorization for this number?

6. Your ceiling fan is going, somebody pulls the cord once, and you want to return it to the original setting, but you don't know if it is a 2-setting or a 3-setting fan. What is the smallest number of times you need to pull to be sure the fan is back in its original setting? Is there a way to do this if the fan might be 4-setting? Any number?

7. Mrs. Weatherby baked 175 cookies for a party. The children ate $\frac{4}{7}$ of the cookies. The adults ate 48 cookies. How many cookies were left?

8. Compare $\frac{11}{6}$ and $\frac{7}{4}$.