SSAT 数学最后几层窗户纸 X

Consider the sequence where each term is defined by the formula $a_n = 5n - 1$, starting with $n = 1$:

1. Write out the first ten terms of the sequence.
2. Identify how many times the digit '0' appears in these terms.

A chemist mixes four chemicals in the ratio $1:4:n:2n$ by weight. If the weight of the third chemical is $\frac{1}{3}$ of the total weight of all four chemicals combined, what is the value of n?

Let the functions f and g be defined as $f(x) = 7 - 2x$ and $g(x) = 2x^3$. If $g(-1) = k$, what is the value of $f(k^2)$?

If x and y are positive numbers, $\frac{x^8}{y^2} = 180$ and $x^6 = 5$, what is the value of $\frac{x}{y}$?

If x and y are positive numbers such that $\frac{x^9}{y^3} = 243$ and $x^4 = 81$, what is the value of $\frac{x^3}{y^2}$?

Taxi fare is $\$1.50$ for the first mile and $\$0.40$ for each additional $\frac{1}{2}$ mile. How many miles can a passenger ride for $\$6.30$?

A taxi fare structure charges $2.50 for the first mile and $0.75 for each additional quarter mile. If a passenger has $15.00 to spend on the taxi, how many miles can the passenger travel?

If $a = 2b$ and $3b = 5c$ for positive values of a, b, and c, what is the value of $\frac{c}{a}$?

If $a = 3b$ and $2b = 7c$ for positive values of a, b, and c, what is the value of $\frac{b}{a}$?

$3x - 2y = -6$

In the xy-coordinate plane, the graph of the equation above is a line that intersects the x-axis at point A. What are the coordinates of A ?

Isabella has to choose three courses from a list of seven available courses: Art, Biology, Chemistry, Drama, English, French, and Geology. Each course is unique and she must select exactly three. How many different combinations of courses can Isabella choose?

1, 2, 3, 5, 8, ..., f(n), 求 f(8)