Question JV#1:

Nate challenges you to find the maximum value of $z = 2x + 3y$ such that $\begin{cases} x + y \leq 6 \\ 2x + y \leq 8 \end{cases}$ where x, y are non-negative real numbers.

Question JV#2:

A two-digit number is called "special" if, when multiplied by itself, the result is a number whose last two digits are the same as the original number. For example, 25 is a special number, since $25 \cdot 25 = 6\underline{25}$.

Stephanie B. wants you to find another two-digit number that is "special."

Question JV#3:

Stephanie C. wants to know what is the last digit of 4^{2004}.

Question JV#4:

Mrs. Brakebill challenges you to find the coefficient of the term x^4y^4 in the binomial expansion $(2x^2 + 5y)^6$.

Question JV#5:

Nguyen can't seem to solve this problem, can you help him out? What is the minimum value of $2x^2 + 4x$?

Question JV#6:

Define K_n to be a graph on n vertices with an edge joining any pair of vertices. For example, K_3 has 3 edges, K_4 has 6 edges, K_5 has 10 edges. Patty wonders how many edges are there in K_{10}?

Question JV#7:

Professor Wang would like to know in how many ways can he give 3 candy bars to 4 students, given each student can get 0 or more candy bars?

Question JV#8:

Let Φ be the circle of radius 2 centered at the origin in the plane. Alan wants to know the shortest possible distance between Φ and the point $(\frac{-1}{2}, \frac{\sqrt{255}}{2})$.

Question JV#9:

Brad wants to know what x will satisfy the equation

$$\frac{1}{1+\frac{1}{1+\frac{1}{1+\frac{1}{1+x}}}} = 2$$

Can you help him out?

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Question JV#10:

Professor Morley loves to factor numbers. He would like to challenge you to factor 26456 into primes.