ANSWERS

A) _____

B) _____

C) _____

A) Solve for x.

$$\begin{vmatrix} 1 & -3 & 5 \\ 0 & 2 & 1 \\ x & 2 & 8 \end{vmatrix} = 38 - 5x$$

B) For what value(s) of a does the system $\begin{cases} (1) & x + 2y - 3z = 5 \\ (2) & 2x + y + 2z = 7 \\ (3) & 7x + 8y - 5z = a \end{cases}$ have an infinite number of

solutions?

C) It has been stated that we count in base ten because we have ten fingers.
A race of humanoids (called Cylons) have only one hand with many fingers.
Suppose a Cylon solves the quadratic equation $x^2 + 21x + 99 = 0$ and claims that the
difference between its roots is 12. How many fingers does a Cylon have?
It is understood that all numerical values have been expressed in the Cylon base b, which is
equal to the total number of fingers that a Cylon has.