

12. Multiple choice. Pick the correct answer then PROVE it is correct. If n is an integer with $n \bmod 3 = 1$, then $\lfloor n/3 \rfloor$ is equal to

- (a) $(n+1)/3$, (b) $n/3$, (c) $(n-1)/3$, (d) $(n-2)/3$.

We are told $n = 3k + 1$. So $\lfloor \frac{n}{3} \rfloor = \lfloor \frac{3k+1}{3} \rfloor = \lfloor k + \frac{1}{3} \rfloor = k = \frac{n-1}{3}$

13. Write 46 in base 16. $46 = 2 \cdot 16 + 14$ which is $2E_{16}$

14. A coin is tossed 10 times. What is the probability that exactly 6 of the tosses will land as heads?

Universe is the # of words made from the alphabet T, H
 Success is # of words with exactly 6 H

$$\frac{\binom{10}{6}}{2^{10}}$$

15. Are $p \wedge (q \vee r)$ and $(p \wedge q) \vee r$ logically equivalent? Justify your answer.

No

P	q	r	$p \wedge (q \vee r)$	$(p \wedge q) \vee r$
T	T	T	T	T
T	T	F	T	F
T	F	T	T	T
T	F	F	F	F
F	T	T	F	T
F	T	F	F	F
F	F	T	F	F
F	F	F	F	F

different truth values