
Online HW 0: Bases

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Home Base, Part A

Beginning problems about numbers in various bases.

If you haven't already practiced, take an opportunity now.

Geogebra link: <https://tube.geogebra.org/m/1529377>

Geogebra link: <https://tube.geogebra.org/m/1527705>

Problem 1 *Note: The “free response” answers are not checked for accuracy. To optimize your learning, we recommend you submit your own answer before revealing the hint.*

Complete the following sentence:

To (optimize / minimize) my learning, I plan to my own answer (before / after) revealing the .

Problem 2 *Explain why the following “joke” is “funny:” There are 10 types of people in the world. Those who understand base two and those who don't.*

Problem 3 *You meet some Tripod aliens, they tally by threes. Thankfully for everyone involved, they use the symbols 0, 1, and 2.*

(a) *Demonstrate how a Tripod would count, beginning at 11.*

11, , , , , , , ,
, , , , , ,

(b) *What number comes immediately before 10?*

(c) *Before 210?*

(d) *Before 20110?* *Explain your reasoning.*

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Problem 4 You meet some people who tally by sevens. They use the symbols O, A, B, C, D, E , and F , in that order. (Note: Although it is common to use the letters A through F for digits greater than ten, these people are doing something different.)

- (a) What do the individual symbols O, A, B, C, D, E , and F mean? (Note O is not 0.)
- (b) Demonstrate how to count from DD to AOC ? (Note: Case matters.)

$DD, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?},$
 $\boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?},$
 $\boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?},$
 $\boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}$

- (c) What number comes immediately before AO ? $\boxed{?}$
- (d) Before ABO ? $\boxed{?}$
- (e) Before $EOFFA$? $\boxed{?}$

Problem 5 Now, suppose that you meet a hermit who tallies by thirteens. Demonstrate the hermit's counting below.

8, 9, $\boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \dots,$
 18, $\boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}, \boxed{?}$