



### KRRC's Death Ray Antenna

An electrician is installing KRRC's new psychotropic mind-warping death ray antenna. The procedure is complicated (it's a demonic contraption) and she is uncertain how to connect the wires.

Exactly  $n$  wires run from the KRRC office to the roof of ODB, and the electrician needs to determine which wires in the office correspond to those on the roof. Armed with a large battery and ammeter, she can connect and disconnect wires at either end and test for a closed circuit.

Since it takes some time and effort to make the trip from the office to the roof (laziness is the mother of invention), she'd like to minimize her trips back and forth. How can she do this?

*Even Kant could do this.*

### A Bunch of Zeros

You may recall that  $n$  factorial, written  $n!$ , is the product of all positive integers less than or equal to  $n$ , that is,

$$n! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot \dots \cdot n$$

100! is a large number, but it is dwarfed by 1000!. Notice that  $10! = 3,628,800$  has 2 trailing zeros.

How many trailing zeros does 100! have? and what if  $n = 1000$ ?

Too easy? For which  $n$  does  $n!$  have 22 trailing zeros? (There are five.) Which yield 23 trailing zeros?

*Even Kant could do this.*

AUS ATE CAL CI CIP DI DI DAC  
DU ENT FEIT ~~GAR~~ GLE I I IN IN  
LEM ~~LOUS~~ OB PO PU RAS RATE RE  
RE ~~R~~ SCIND SUR TERE TIC TY VE  
VEI

Fill in the blanks below with the syllables above. The definition is given below the blanks. If you need a hint, the first letters of each word are upside-down, below. THESE ARE ALL GRE WORDS.

EX) G A R R U L O U S

pointlessly talkative, talking too much

1) \_\_\_\_\_  
beginning to come into being

2) \_\_\_\_\_  
to refuse to have anything to do with

3) \_\_\_\_\_  
to obtain by deception or flattery

4) \_\_\_\_\_  
to invalidate

5) \_\_\_\_\_  
without adornment; bare; ascetic

6) \_\_\_\_\_  
truthfulness; honesty

7) \_\_\_\_\_  
excess; overindulgence

8) \_\_\_\_\_  
intended to teach or instruct

9) \_\_\_\_\_  
unyielding; hardhearted; intractable

10) \_\_\_\_\_  
controversial; argumentative

*Even Aristotle could do this.*

1-1-2-R-3-1-4-R-5-A-6-V-7-S-8-D-9-O-10-P

### So what if Freud can do it??

*Even Freud could do this.* Easy

*Even Pythagoras could do this.* Not easy

*Even Aristotle could do this.* More challenging

*Even Kant could do this.* This is a hard problem.

*Even Ray Mayer could do this.* Go ask him for help.

Think you know the answer?

For more info on these puzzles, go to  
<http://www.reed.edu/~mcphailb/quest/>

California's leading  
candidate is "as  
smart as [his]  
breasts look."



Questions? Blitz: [puzzles@reed.edu](mailto:puzzles@reed.edu)