Propelics JS Test

Remember

- Upload your file to a github or bitbucket public repo and share it with us. If you haven't used git before, zip it and send it via email.
- You have until the end of the day to send this test answered.
- Code comments are encouraged.
- Use of external libraries is **NOT** allowed.
- Use **only** supported features in ECMAScript v5 or lower
- The test will be reviewed by our team and we will get back to you to talk about it.
- Do not forget to tell us in your email how much time you spent on this test.
- Creating an interface to run all the scripts is preferred (node console, web page, titanium app, etc.)

Test

1. Write a function that receives 2 Date parameters and returns the time difference in minutes.

2. Write a calculator which evaluates expressions with decimal numbers and the operators `+` , `-` , `*` , `/` and prints the result on the screen (don't use `eval()`). No user input for this is needed, instead you will give a string with the operation as an input i.e. if it receives `5+4-2` the result printed on screen is `7` .

3. Write a function that receives a matrix and returns its transposed one.

4. Given 2 strings of unknown characters (but it can't be repeated) create a function that returns an array of the characters that are repeated in both strings in the most efficient way.

5. Write a program that computes

$$4 \cdot \sum_{k=1}^{10^6} \frac{(-1)^{k+1}}{2k-1} = 4 \cdot (1 - 1/3 + 1/5 - 1/7 + 1/9 - 1/11...).$$

6. Write a function that prints the next 20 leap years.

7. Given a number between 0 and 1 (e.g. 0.15), print its binary representation. If the number cannot be represented accurately in binary with at most 32 characters, just print "Error".

8. Write a function to perform basic string compression using the counts of repeated characters; e.g "aabcccccaaa" would become "a2b1c5a3". If the compressed string would not become smaller than the original string, just print the original string.

9. Write a function that takes a list of strings an prints them, one per line, in a rectangular frame. For example the array ["November", "is", "the", "coolest", "month", "of", "the", "Year"] gets printed as:

```
************
* November *
* is       *
* the      *
* coolest  *
* month    *
```

```
    * of         *
    * the        *
    * Year       *
    ***********
```

10. Write a function that combines two arrays by alternatingly taking their elements in, e.g. `[x,y,z]`, `[10,20,30]` prints `[x,10,y,20,z,30]`.

Good Luck!

- The Propelics Team

Don't forget to send this back to:

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