Is it a digit haiku?

Asked 3 days ago Active today Viewed 3k times

We can read `13576870234289` digit-by-digit in English, and it makes a haiku:

> *one three five seven*
> *six eight seven zero two*
> *three four two eight nine*

We say it's a "digit haiku", because when read out like this, it's 5+7+5 syllables long, **and** no word is broken across a line.

For example, `111171111101111` is **not** a digit haiku, even though it has 17 syllables:

> *one one one one* ***se-***
> ***-ven*** *one one one one one* ***ze-***
> ***-ro*** *one one one one*

Two-syllable digits (`0` "zero" and `7` "seven") are not allowed to span the 5th-and-6th syllable positions, or the 12th-and-13th syllable positions. (Other than that, any 17-syllable digit string makes a digit haiku.)

All other digits beside 0 and 7 are one syllable long in English.

Task

Given a non-empty string of digits (or list of numbers) `0` through `9`, decide whether it forms a digit haiku.

- You can assume the string does not start with `0`, and thus you're also permitted to take input as a number.
- You can assume the input is at most 17 digits long. However, it may be more than 17 *syllables*.
- This is `code-golf` : aim to write the shortest answer, measured in bytes.

Test cases

```
7767677677 -> True
13576870234289 -> True
123456789012345 -> True
11111111111111111 -> True
9 -> False
```

3 Nice challenge! It's missing a scoring system though, rip. This is code-golf, I'm assuming? – HyperNeutrino ♦ 2 days ago

I'm not familiar with English speaking. So, how many syllables each digits contains? – tsh 2 days ago

4 @tsh All the one-digit numbers have one syllable, except 0 and 7 have two. – xnor 2 days ago

Suggested test cases: `111111111111117` and `11111111111111171` – Unrelated String 2 days ago

Oops, yes, I fixed the test case (and addressed some other comments). – Lynn 2 days ago

14 Answers

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8

Retina 0.8.2, 25 bytes

```
0|7
_#
^.{5}\w.{6}\w.{4}$
```

Try it online! Link includes test cases. Explanation:

```
0|7
_#
```

Expand `0` and `7` into tw o syllables.

```
^.{5}\w.{6}\w.{4}$
```

Check that neither the 6th nor the 13th syllable is the second such syllable.

answered Oct 19 at 23:35

Neil

109k 9 53 220

J, 32 bytes

6

```
[:(5&e.*12&e.*17={:)[:+/\1+0=7|]
```

Try it online!

Straightforward:

- Take list of digits
- `7|]` mod 7
- `0=` equals 0 (returns 1-0 list)
- `1+` add 1 (now list of 1-2)
- `[:+/\` scan sum
- `[:(5&e.*12&e.*17={:)` is 5 an elm and is 12 an elm and is 17 the last?

edited 2 days ago

answered 2 days ago

Jonah
12.4k 3 20 47

JavaScript (ES6), ~~48~~ 41 bytes

6

Expects a list of digits. Returns a Boolean value.

```
a=>a.map(d=>i-=d%7?1:i%7-6?2:.1,i=17)&&!i
```

Try it online!

How?

We use a syllable counter i initialized to 17, subtract either 1 or 2 from i after each digit and check whether we end up with $i = 0$. The haiku is supposed to look like that:

```
17 16 15 14 13
12 11 10 09 08 07 06
05 04 03 02 01
```

When the digit is either 0 or 7 and $i \equiv 6 \pmod 7$, we have an invalid hyphenation and subtract $1/10$ from i instead of 2. Because this test can only be triggered once, i remains a non-integer value whatever happens next.

edited 2 days ago

answered 2 days ago

Arnauld

133k 12 141 495

5

Jelly, 11 bytes

```
7ḍ‘ŒṖ§Ḍ575e
```

Try it online!

Explanation

```
7ḍ‘ŒṖ§Ḍ575e  Main Link
// convert to syllables
7ḍ           Divisibility by 7 (1 for 0 and 7, 0 otherwise)
  ‘          Increment (2 for 0 and 7, 1 otherwise; this gives the syllables)
// all ways to divide the digits into lines, and total syllable counts
   ŒṖ        Partitions (all divisions of a list)
     §       Sum each sublist for each partition
// check if any of them are [5, 7, 5]
      Ḍ      Convert the lines' syllable sizes into a decimal integer; this can cause
collisions but not if the total number of syllables is maximum 34
       575e  Is 5-7-5 a possible partition?
```

Takes a long time on some test cases so I didn't include them.

-1 byte thanks to Jonathan Allan

edited 2 days ago

answered 2 days ago

HyperNeutrino ♦

27.8k 4 47 167

1 @JonathanAllan Ah, guess I need to review what vectorization to a depth actually means. Thanks! – HyperNeutrino ♦ 2 days ago

4

R, ~~72~~ ~~66~~ ~~65~~ 63 bytes

Edit: -6 bytes thanks to Robin Ryder, and -2 bytes thanks to Giuseppe

```
max(s<-cumsum(1+!utf8ToInt(scan(,''))%%7-6))==17&5%in%s&12%in%s
```

Try it online!

edited yesterday

answered 2 days ago

Dominic van Essen
5,201 1 5 15

66 bytes by using only `cumsum` and avoiding those `c`s. – Robin Ryder 2 days ago

Thanks! I kind-of had in mind to use the `-48...%%7` trick but you beat me to it! The double `%in%` is also nice (and I'd never have guessed it'd be shorter than `c`). – Dominic van Essen 2 days ago

Well, it also allows you to get rid of the `all`, which is why it comes out shorter! – Robin Ryder 2 days ago

63 bytes – Giuseppe yesterday

Thanks @Giuseppe! That's really clever. – Dominic van Essen yesterday

3

Python 2, 53 bytes

```
t=17
for d in input():t-=0<d%7or 2+t%7/6*t
print t==0
```

Try it online!

Based on Arnauld's solution. I use `True/False` output here and in the answers below since I'm not sure what `decision-problem` output is allowed.

55 bytes

```
t=4
for d in input():t-=1+~d%7/6+t%47/46*40
print-t==93
```

Try it online!

58 bytes

```
t=1
for d in input():t=t<<1+~d%7/6|1
print-3967&t>>5==4225
```

Try it online!

58 bytes

```
s=t=0
for d in input():s+=1+~d%7/6;t+=s%7==5
print s*t==34
```

Try it online!

edited 2 days ago

answered 2 days ago

xnor

125k 21 235 560

-3 bytes if you input as numbers and use (mod 7) to check the numbers – HyperNeutrino ♦ 2 days ago

@HyperNeutrino Thanks, I had missed that a list of digits was allowed. This might allow further improvements. – xnor 2 days ago

I'm always conflicted about this output case: returning a truthy/falsey value from a *function* feels OK, but when printing from a full-program, it's like the value "leaves the Python world and becomes a string in the OS world", where Python's concept of truthy/falsey doesn't exist anymore. So, for full programs, I think "two constant distinguishing outputs" makes more sense. But deciding by exit code is fine too, so maybe you can finish with `t/0`. – Lynn 2 days ago

3

Charcoal, 25 bytes

```
:=⪫ S ∨ % I ι⁷ χθ ›⁼¹⁷ L θ№ % ⌕ A θ0⁷ ¦⁵
```

Try it online! Link is to verbose version of code. Outputs a Charcoal boolean i.e. `-` for haiku, nothing if not. Works like my Retina answer, except it replaces `0` and `7` with `10` and checks that neither the 6th nor the 13th syllable is `0`. Explanation:

```
:=⪫ S ∨ % I ι⁷ χθ
```

Reduce all of the digits modulo 7, then change all `0`s to `10`, so that `0` represents a second syllable.

```
›⁼¹⁷ L θ
```

Check that there are 17 syllables, but not that...

```
№ % ⌕ A θ0⁷ ¦⁵
```

any second syllables are at position equivalent to 5 (modulo 7).

edited 2 days ago

answered Oct 19 at 23:53

Neil

109k 9 53 220

1 I don't think this works for cases like `9` where there aren't enough characters? – FryAmTheEggman 2 days ago

3

Perl 5 (`-p`), ~~38~~, 34 bytes

```
s/0|7/ /g;$_=/^.{5}\V.{5}\H.{5}$/
```

Try it online!

edited 2 days ago

answered 2 days ago

Nahuel Fouilleul

6,477 1 6 15

3

C (gcc), ~~96~~ · · · ~~95~~ 93 bytes

Added 14 bytes to fix a bug kindly pointed out by HyperNeutrino.
Saved 2 bytes thanks to rtpax!!!

```
p;h;s;c;f(long n){for(h=5,p=s=c=0;n;c=c>=h?p|=c!=h,s++,h^=2,0:c,n/=10)c+=n%10%7?1:2;
h=p|s<3;}
```

Try it online!

Returns 0 if the input integer is a digit haiku or 1 otherwise.

edited 2 days ago

answered 2 days ago

Noodle9

9,714 1 13 30

93 bytes – rtpax 2 days ago

@rtpax Nice one - thanks! :-) – Noodle9 2 days ago

JavaScript (Node.js), 46 bytes

3

```
s=>/^.{9},.{13},.{9}$/.test(s.map(c=>c%7||.1))
```

Try it online!

Take input as array of digits. Output truthy vs. falsy.

edited 19 hours ago

answered 2 days ago

tsh
14k 2 19 66

looks more like strange magic than javascript. How does it work? – Pureferret 11 hours ago

PowerShell Core, 102 bytes

1

```
($l=($args-replace'7','0'|% t*y|%{($s+=(2,1)[!!([int]$_-48)])}))-contains5-and$l-
contains12-and$s-eq17
```

Try it online!

answered 2 days ago

Julian
101 5

1 60 bytes with splatting – mazzy 2 days ago

Nice one! You out-golfed me by 42 bytes, do you want to post it as your own answer? – Julian yesterday

Thanks, no. This is still your solution. Just a little bit of a codeGolf – mazzy yesterday

05AB1E, 12 bytes

1

```
7Ö>.œO575S.å
```

Input as a list of digits.

Try it online or verify all test cases.

Explanation:

```
7Ö            # Check for each digit of the (implicit) input-list whether it's
divisible
              # by 7
  >           # Increase these checks by 1 (2 for 0 and 7; 1 otherwise)
   .œ         # Check all partitions of this list
     O        # Sum each inner-most list
      575S    # Push [5,7,5]
          .å  # Check that this list is in the list of lists
              # (after which the result is output implicitly)
```

answered 2 days ago

Kevin Cruijssen
82.2k 7 105 298

JavaScript, 53 bytes

1

`BigInt` input.

```
n=>!(f=s=>n?f(s-=n%10n%7n?1:s%7-6?2:18,n/=10n):s)(17)
```

edited 2 days ago

answered 2 days ago

Ry-
5,283 1 19 30

Husk, 22 bytes

1

```
§&o=17→§&€5€12∫mȯ→¬%7d
```

Try it online!

Port of my R answer so probably not the golfiest approach in Husk...

```
§&o=17→§&€5€12∫mȯ→¬%7d
§&                      # fork &: are both of the following true?
  o=17→                 # last element equals 17?
       §&               # fork &: are both of the following true?
         €5             # contains 5?
           €12          # contains 12?
                        # ...when applied to:
              ∫         # cumulative sum of
               m     d  # this function applied to digits of input:
                ȯ       # combine 3 functions:
                   %7   # MOD 7
                  ¬     # NOT
                 →      # +1
```

answered 2 days ago

Dominic van Essen
5,201 1 5 15

bit difficult to get all partitions of a list, might get up to the same bytecount. Nice answer!
– Razetime 2 days ago