

pb40

March 4, 2020

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[69]: import re
      from math import sqrt
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[42]: triangle_number = lambda n : 0.5 * n * (n + 1) # genere uniquement des int
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[50]: char_to_int = lambda c : ord(c.lower()) - 96
```

```
[52]: def word_to_int(word):
      return sum(char_to_int(c) for c in word)
```

```
[88]: def is_triangle_number(n): # resolution de l'équation  $n^2 + n - 2x = 0$  permet de
      ↪ savoir si x triangulaire ou non si resultat int
      delta = 1 + 8*n
      x1 = (-1 + sqrt(delta))/2
      return x1.is_integer()
```

```
[101]: def is_word_triangle(word):
      return is_triangle_number(word_to_int(word))
```

```
[103]: with open('p042_words.txt', 'r') as f:
      data = f.read().replace('"', '').split(',')
      f.close()

      sum((is_word_triangle(word) for word in data))
```

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[103]: 162
```