

Passwords and Password Managers

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Passwords and numbers

- iPhone short PIN: 4 digits ($10 \times 10 \times 10 \times 10$) = 10,000 possible PINs (PIN=Personal Identification Number, dates from the 1970s)
- iPhone long PIN: 6 digits ($10 \times 10 \times 10 \times 10 \times 10 \times 10$) = 1,000,0000 possible PINs
- 8 character password: uppercase characters ($26 \times 26 \times 26 \times 26 \times 26 \times 26 \times 26 \times 26 = 208,827,064,576$ possible passwords)
- 8 character password, upper and lower case characters: 53.4 trillion possible passwords
- 15 character password: upper and lower case, numbers, special characters: 4.63 octillion possible passwords

Four digit PIN

$10^4 = 10,000$ possibilities

Tiny fraction of a second to break

Six digit PIN

$10^6 = 1,000,000$ possibilities

Tiny fraction of a second to break

Eight character password upper case

ECNERWAL = 208,827,064,576 possible passwords

Seconds to break

Eight character password upper and lower case

AbsoLute = 53.4 trillion possible passwords

Seconds to break

15 character password: upper and lower case, numbers, special characters

Rose is red 1! = 4.63 octillion possible passwords

(Spaces count as characters)

Essentially unbreakable

Note: if your bank *limits* special characters, or doesn't allow spaces, yell at them to fire their security manager.

Even stronger password: memorable phrase

Jonathan Swift invented Yahoos = 31 characters,
easy to type and remember, unbreakable

Sequim is obsessed with lavender = 33 characters

This way to the Irrigation Festival = 37 characters

My first computer was a TRS-80 = 31 characters