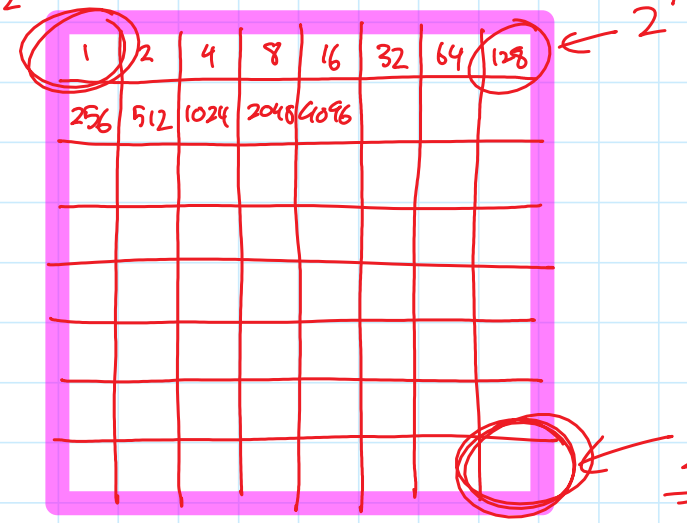
Chess Board Problem

September 28, 2017 1:04 PM

2^0



2^7

2^{63}

$9.22... \times 10^{18}$

9,220,000,000,000,000,000 grains

9 quintillion grains × 0.015625 grams

1.44×10^{17} grams

↓ ÷1000 10^3

1.44×10^{14} kg $10^{17} \div 10^3$

↓ ÷1000 10^3

1.44×10^{11} tons

144,000,000,000 tons

↓ ÷300 000

480 383 960

Scientific Notation

- useful for representing and working with really BIG and small numbers

eg Mass of the sun

$5980000000000000000000000.\ kg$

$\hookrightarrow 5.98 \times 10^{24}\ kg$

vs $4200000000000000000000000000\ kg$

$4.2 \times 10^{25}\ kg$

Rules: ① Start with 1 digit before decimal

② Multiply by a power of 10

$75020000000. = 7.5 \times 10^{9}$

$201\,000\,000 = 2.01 \times 10^{8}$

$45\,000 = 4.5 \times 10^{4}$

$2.01 \div 4.5$

$0.467 \times 10^{4} = \boxed{4.67 \times 10^{3}}$

$\downarrow$

4670 teachers

eg. Mass of a hydrogen atom

eg. Mass of a hydrogen atom

1.66×10^{-24} g

$= 0.000\,000\,000\,000\,000\,000\,000\,001\,66$ g

$10^3 = 1000$ ÷10

$10^2 = 100$ ÷10

$10^1 = 10$ ÷10

$10^0 = 1$

$10^{-1} = 0.1$

$10^{-2} = 0.01$

0.000 000 72

$= 7.2 \times 10^{-7}$

8×10^{-5}

0.00008

Monday: Review

Wed: Test Oct 4th

HW: Chapter 2 Review in text

p 87-89 # 1-27 odd letters