

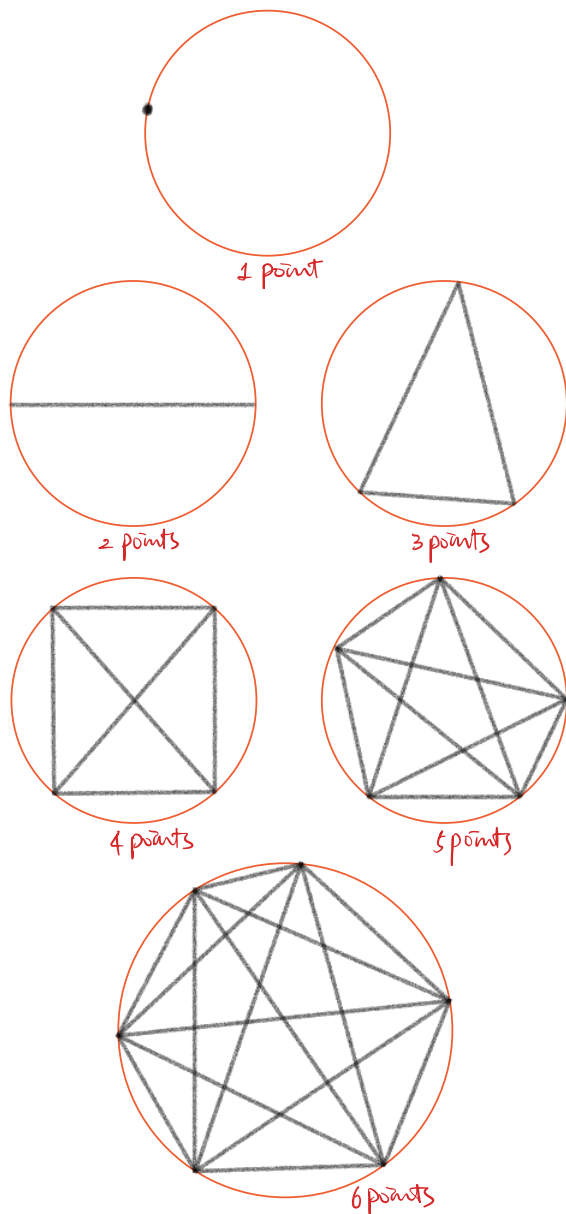
3A Divisibility rules & Motivating examples

Find the pattern

①	Number	Divisible by 4?	Last 2 digits	Last 2 digits divisible by 4?
	81			
	154			
	252			
	3624			
	8185			
	9908			

②	Number	Divisible by 9?	Sum of its digits
	81		
	154		
	252		
	3624		
	8185		
	9908		

③	input :	1	2	3	4	5	6
		↓	↓	↓	↓	↓	↓
	value :	1	2	4	8	16	32



points on circle

Pieces

1

2

3

4

5

6

What we learned: We are NEVER sure until we see the FULL PICTURE!

EXTRA Assignment: PROVE a number is divisible by 4 if its last 2 digits is divisible by 4.

3B factors of natural numbers

$$210 = 21 \times 10$$
$$= 3 \times 7 \times 10$$

Example 1: Factorize 273.

List all its factors.

Example 2: List all prime factors of 273. How about 252?

Example 3: Find the HCF & LCM of

21, 32, 56

Terminologies:

Factor:

Factorise:

Even / Odd:

Prime number:

Composite number:

Common factors:

Highest common factor (HCF):

↳ Greatest common divisor (GCD)

Common multiple:

Lowest common multiple (LCM)

Index form (Power)

Extra: Is 492 a prime number? What about 491?

EXTRA Assignment: write a Python program to test whether a number is prime.

Hint: use a for loop and the modulo operator.

3D Negative Numbers

① My salary is \$2,000 per month, and my monthly rent is \$1,500. In addition, I pay \$800 each month to get food.

② Your parents give you an \$1,000 monthly allowance. You pay no rent but pays \$800 on food.

③ I borrow \$300 from the bank

- from my side:
- from the bank's side.

Terminology

Positive and negative numbers:

Opposite:

Real numbers:

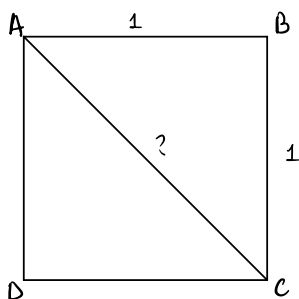
Integers:

Rational numbers:

Numerator:

Denominator:

3E Roots of a number



By Pythagorean's Theorem:

$$AC^2 = AB^2 + BC^2$$

Terminology

Square root:

Cubic root:

n^{th} root:

But what multiplies itself and becomes 2?

EXTRA Assignment: prove that $\sqrt{2}$ is not a rational number

Hint: Suppose $\sqrt{2}$ is rational. Then show the numerator and denominator are both even.

End of chapter assignments

Page 74. Review Set 3A:

1. 4, 8, 14, 15

Page 75. Review Set 3B

8, 13, 14.