

I represent the window pane shown in the picture here.

There are two circles, 1 and 2, that which have the same centre.

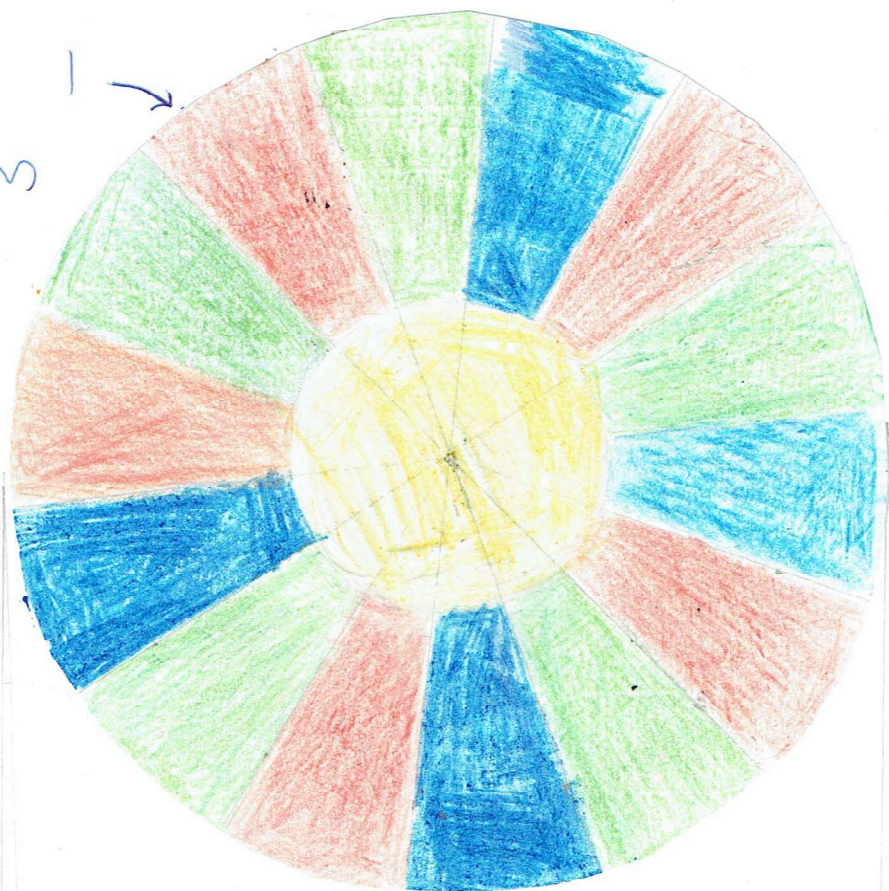
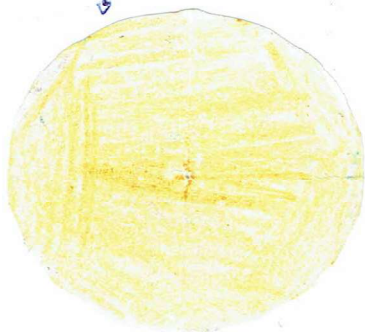
Radius

$$R_1 = \frac{D_1}{2}$$

$$R_2 = \frac{D_2}{2}$$

The colored pane is between circle 1 and 2

Circle 2



Let A_1 represent (R_1 circle 1)

A_2 : Represent (~~R_1~~ R_2 circle 2)

$$A_3 = A_1 - A_2$$

A_3 has 14 separate bits.

Fraction: $\frac{5}{14}$ red, $\frac{5}{14}$ green, $\frac{4}{14}$ blue

$$\therefore \text{Red Area} = \frac{5}{14} \times A_3$$

$$\text{Green} = \frac{5}{14} \times A_3$$

$$\text{Blue} = \frac{4}{14} \times A_3$$

In order to find A_1 and A_2 we need to estimate area of circle

$$\text{area of circle} = \pi r^2$$

In order to find A_3 , find A_1 and A_2 .

$$A_1 - A_2 = A_3$$

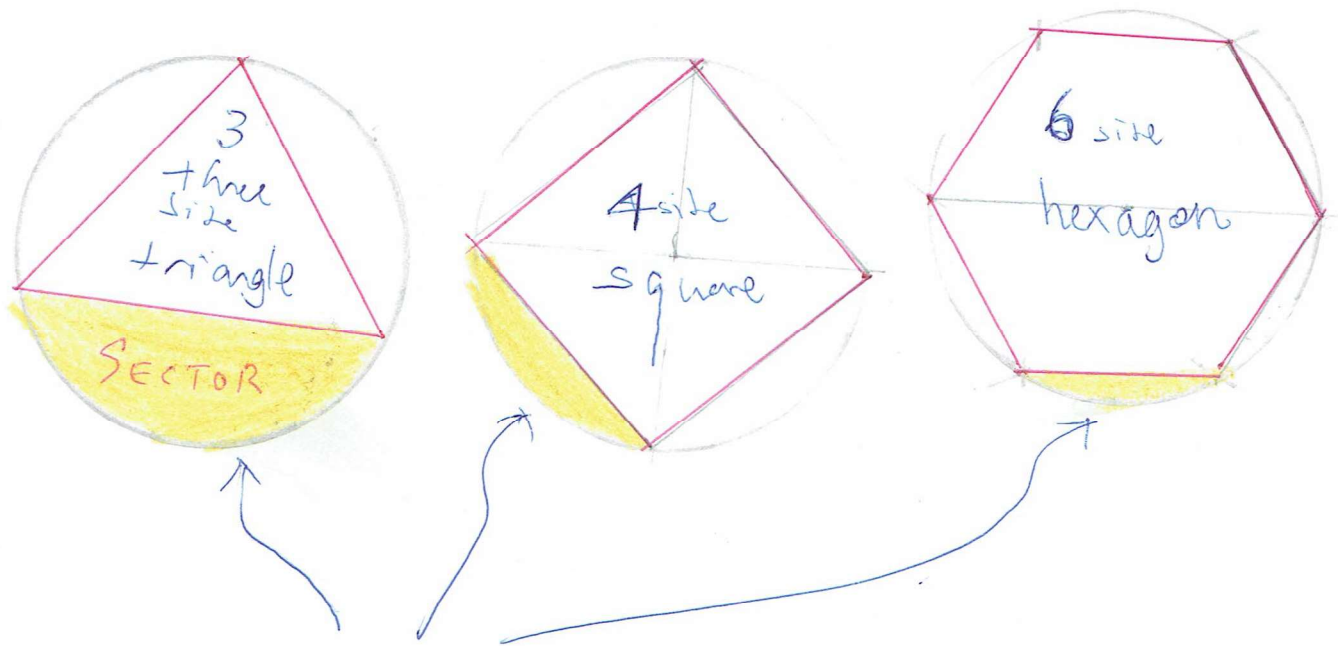
Method (1) use formula.

$$A_1 = \pi \left(\frac{D_1}{2} \right)^2 \quad A_2 = \pi \left(\frac{D_2}{2} \right)^2$$

Method 2: Use Area of Polygons to estimate
the area of a circle

Refer to picture

This method is about polygons.



As we can see,
with a hexagon the area
is closer to a circle because
missing in the sectors are less.
Refer to estimate
few pages method in the next

Step 1 - construct a circle.

Radius of circle: 10 cm 1 unit.
Scale: 10 cm 1 unit

Step 2 - construct a square inscribed in a circle

Step 3 - construct an octagon

Step 4 - construct a 16-polygon.

16 sided polygon

Calculate area of polygons

(1) Area of square: 2 units²

(2) Area of octagon = 8 x area of ΔCOI

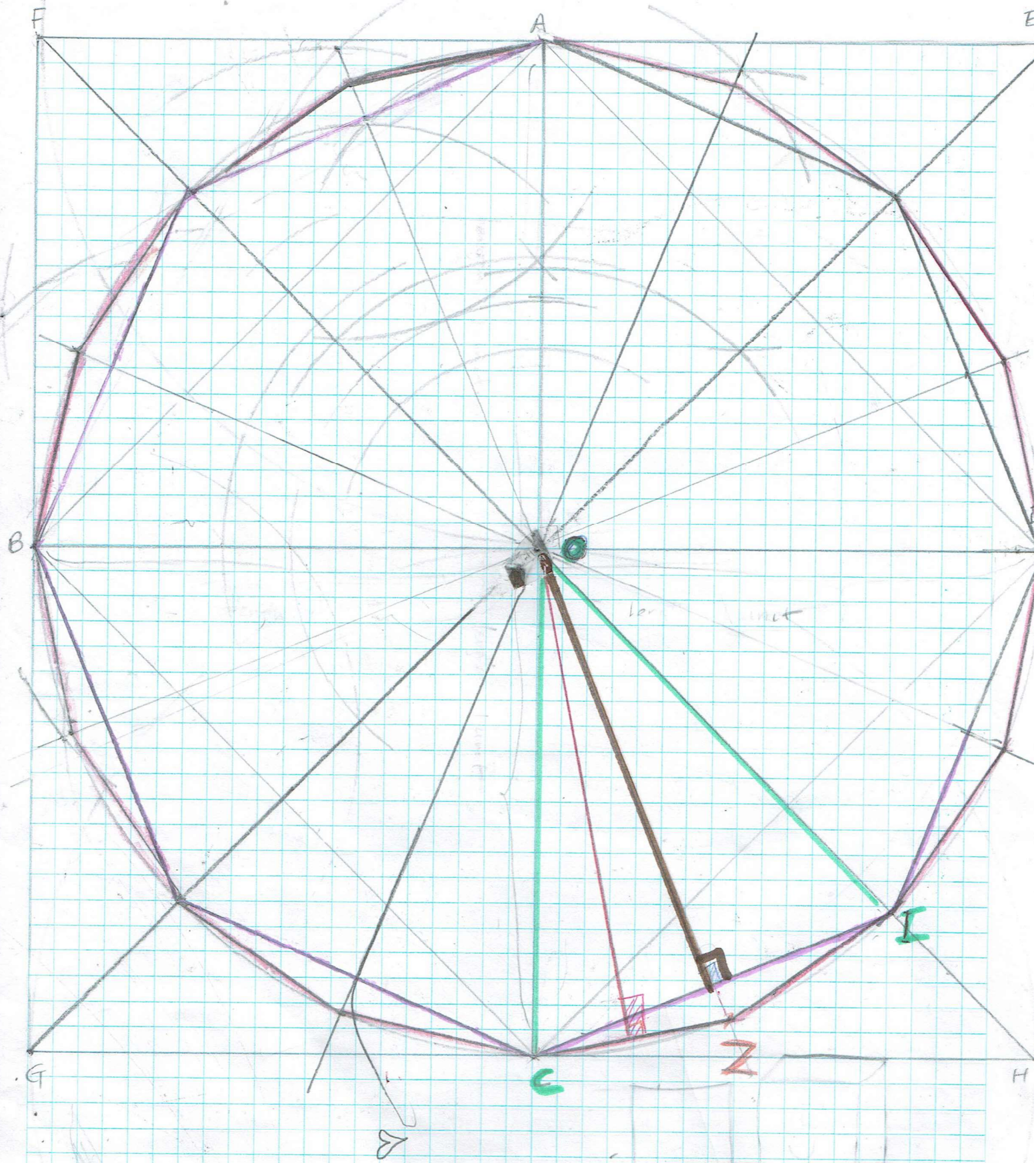
(3) Area of 16-polygon = 16 x area of ΔZOI

$\Delta \text{area} = \frac{1}{2} \times B \times H$ B: Base H: Height

n of n sided polygon	area estimated (unit ²)
4 (square)	2
8 (octagon)	$\frac{1}{2} \times (0.75) \times (0.93)$ = 0.34875
16 (16-polygon)	$\frac{1}{2} \times (0.38) \times (0.93)$ = 0.18715

P4/6

Use this data plot a graph



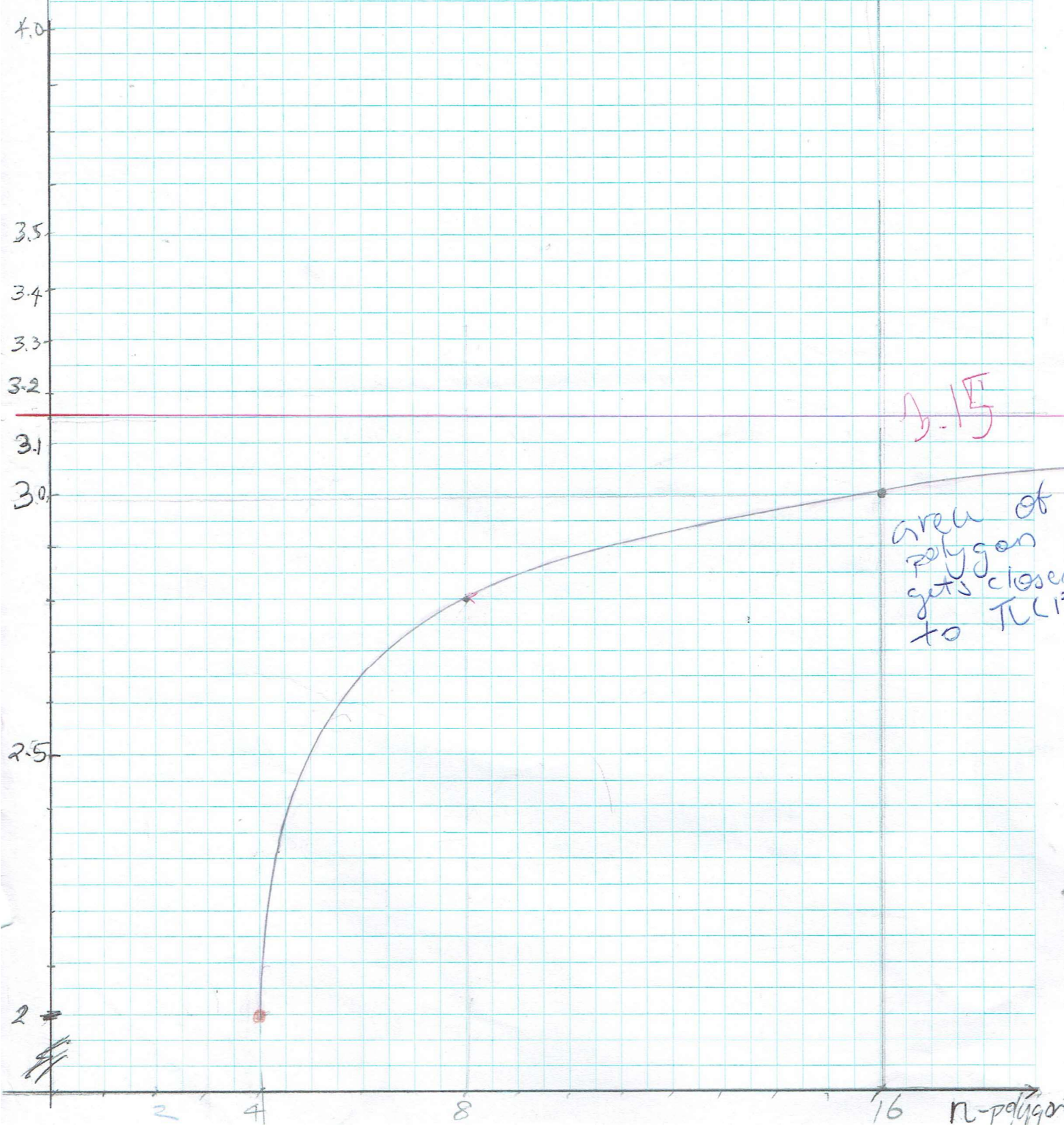
Circle area = πr^2

PS/6



P6/G

AREA (UNIT²)



3.14

Area of polygon gets closer to π

~~2~~

2 4 8 16 n-polygon