HBar Math Circle @ Walden
Class 3 [3.6..2018]

[Problem 3.1] (20 min)

(i) Evaluate the nested fraction $\frac{1}{2/3}$

(ii) Evaluate the nested fraction $\frac{1/2}{2/3}$

(iii) Evaluate the nested fraction $\frac{\frac{1}{2/3}}{3/9}$

(iv) Evaluate the nested fraction $\frac{\frac{1/2}{3/4}}{\frac{3/2}{3/4}}$

[Problem 3.2] (20 min)

(i) Find the next 5 terms in the sequence: 0, 1, 4, 9, 16, 25, _, _, _, _, _

(ii) Find the next 5 terms in the sequence: 0, 2, 6, 12, 20, 30, _, _, _, _, _

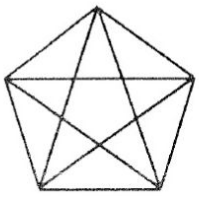
(iii) Find the next 5 terms in the sequence: 0, 1, 5, 14, 30, 55, _, _, _, _, _

(iv) Find the next 5 terms in the sequence: 0, 1, 1, 2, 3, 5, 8, _, _, _, _, _

(v) Find the next 5 terms in the sequence: 0, 13, 6, 19, 12, 5, _, _, _, _, _

[Problem 3.3] (20 min)

Consider the following figure:



(i) How many triangles are there?

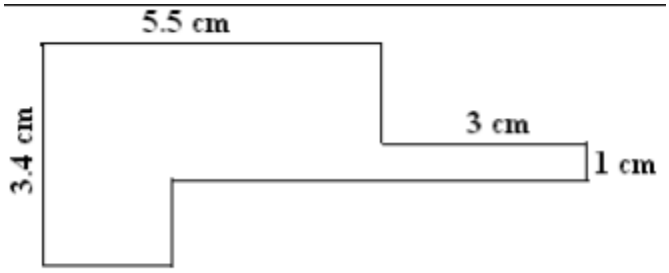
(ii) How many quadrilaterals are there?

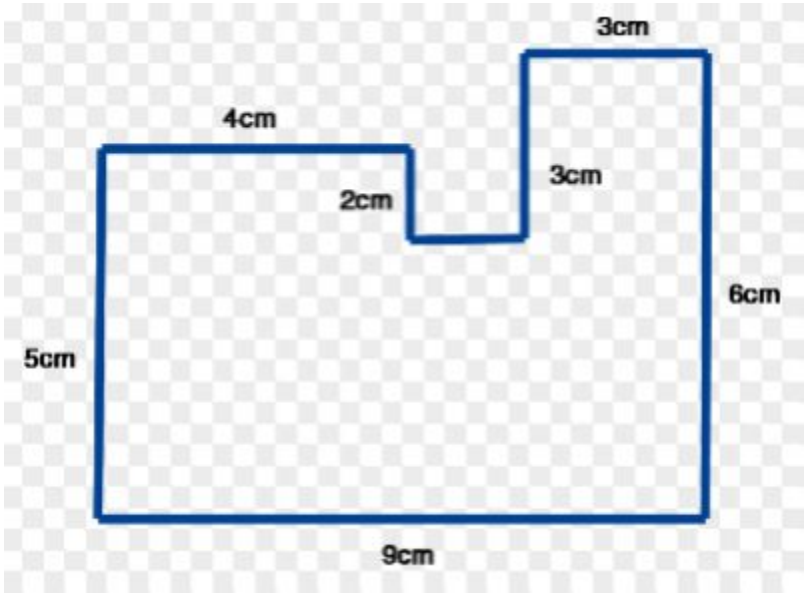
[Problem 3.4] (20 min)

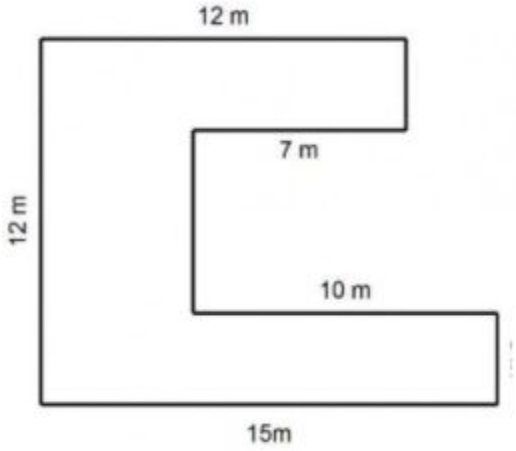
(i) What is the sum of the digits in the result of $5^2 * 2^2 * 3$?
(ii) What is the sum of the digits in the result of $(5 * 2)^2 * 3$?
(iii) What is the sum of the digits in the result of $5^5 * 2^5 * 3$?
(iv) What is the sum of the digits in the result of $5^5 * 2^8 * 3$?
(v) What is the sum of the digits in the result of $5^{105} * 2^{108} * 3$?

[Problem 3.5] (20 min)

Find the perimeter and area of the following figures:


5.5 cm
3.4 cm
3 cm
1 cm


3cm
4cm
3cm
2cm
6cm
5cm
9cm


12 m
7 m
12 m
10 m
15m