

Higher Order Thinking Skills

Primary 5

Lesson 10:
Revision (Heuristics)

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LESSON 10: REVISION (HEURISTICS)

COMMONLY USED HEURISTICS

- 1) Systematic Listing
- 2) Guess & Check
- 3) Making Supposition
- 4) Patterns
- 5) Working Backwards

GUIDED EXAMPLE 1

Tom wants to make a square with rectangular cards each measuring 8 cm by 6cm.
How many such rectangular cards must he use to make the smallest possible square?



(CHIJ SNGS SA2 Q1)

GUIDED EXAMPLE 2

When a number is divided by 5, the remainder is 2.

When the same number is divided by 6, the remainder is 1.

What is / are the possible number(s) if it is between 25 and 50?

GUIDED EXAMPLE 3

Ali has some ducks and sheeps in her farm.
There are 5 more ducks than sheeps.
If there are 148 legs altogether,
how many ducks are there?

GUIDED EXAMPLE 4

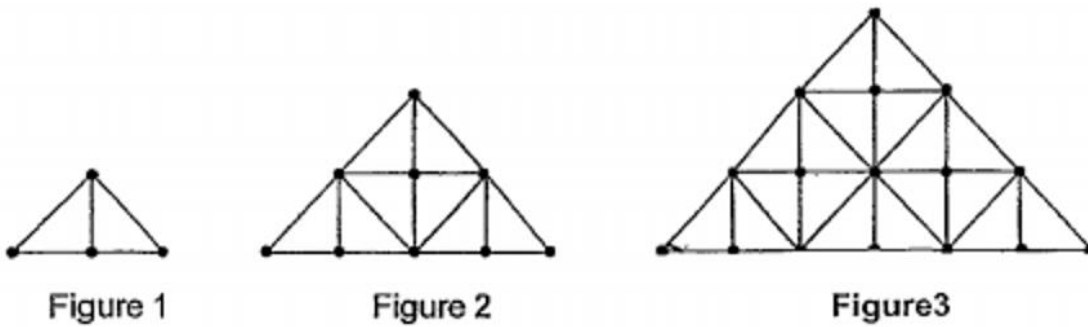
Study the following pattern carefully.

$$1 + 2 + 3 + \dots + 95 + 96 + 97$$

When all the numbers from 1 to 97 are added up, what is the digit in the ones place?

GUIDED EXAMPLE 5

The following figures are made up of small right-angled triangles.
 A dot is placed at the corner of each small right-angled triangle.



The total number of dots and small right-angled triangles in each figure is shown in the table below.

Figure	Total number of dots	Number of small right-angled triangles
1	4	2
2	9	8
3	16	18
4		

- a) Fill in the blanks in the table above for Figure 4.
- b) Find the number of dots in Figure 73.
- c) Find the number of small right-angled triangles in figure 23.
- d*) Given that there are 200 small right-angled triangles in a particular figure, what is this figure number?

GUIDED EXAMPLE 6

Mr Tan was asked how many horses and chickens were there in a farm.
He answered: "Among the animals, there were 118 eyes and 148 legs."
How many of each kind of animals were there?

GUIDED EXAMPLE 7

There was a total of 400 marbles in Bottle A and Bottle B.

Jacky removed $\frac{2}{3}$ of the marbles from bottle A.

He added more marbles to bottle B until the number of marbles in bottle B doubled.

As a result, there were $\frac{1}{4}$ times as many marbles in bottle A than bottle B.

How many more marbles were there in bottle B than in bottle A in the end?

BUILD YOUR UNDERSTANDING

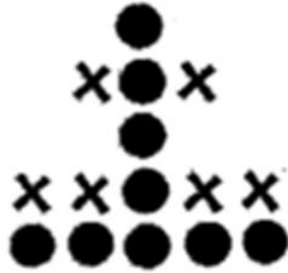
1. Stanley had some strawberries in a carton.
When the strawberries are packed into boxes of 10,
there are 6 strawberries leftover.
When the strawberries are put into boxes of 8,
there are 4 strawberries leftover.
What is the smallest possible number of strawberries in the carton?

2. Farmer Ben has cows, goats and chickens on his farm.
The number of cows is twice the number of goats.
The number of chickens is double times the number of cows.
The animals have a total of 100 legs.
Find the number of cows, goats and chickens on the farm.

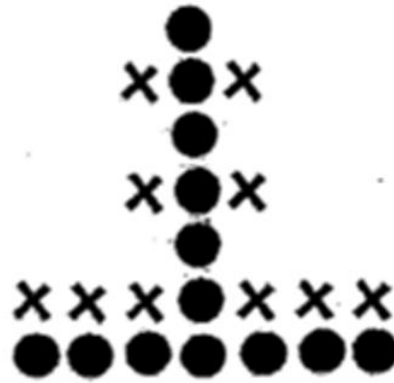
3. Study the pattern carefully.
Then answer the questions below.



Pattern 1



Pattern 2



Pattern 3

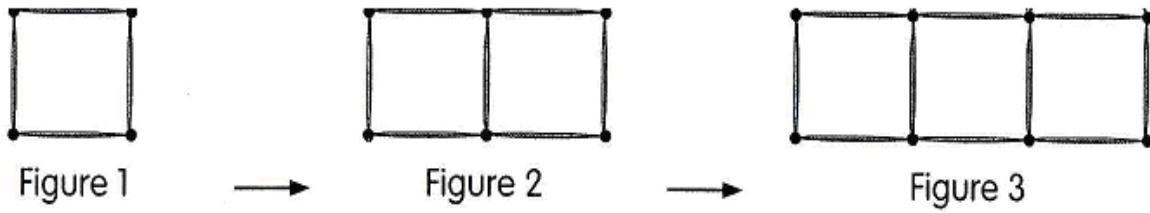
- a) How many dots are there in Pattern 11?
- b) How many dots are there in Pattern 30?
- c) Which pattern will have 281 dots?

4. Mr Chew had a total of 350 fishballs and fish cakes. After selling $\frac{1}{7}$ of the fish cakes and 80 fish balls, he had $\frac{1}{3}$ as many fishballs as fish cakes left. How many fishballs did he have at first?

(Nanyang P5 SA1 Q12)

5. Claire went to buy some strawberries from the supermarket. She threw away $\frac{1}{4}$ of the rotten strawberries, ate 25 of the strawberries and she bought another 67 strawberries. If she had 99 strawberries now, how many strawberries did she buy at first?

6. Study the pattern below and answer the following questions:



- a) How many sticks will figure 5 have?
- b) How many sticks will figure 91 have?
- c) Which figure number has 2317 sticks?

CHALLENGE YOURSELF

There were some water in tank X, Y and Z.

When 12 litres of water was poured from tank Y to tank Z,
24 litres from tank Z to tank X and 15 litres from tank X to tank Y,
the three tanks contained 30 litres of water each.

- a) Which tank has the most amount of water at first?
- b) How much water was in the tank with the least amount of water?

CHALLENGE YOURSELF

There are two neon lights in a shop.
The red light flashes every 6 minutes and the yellow light flashes every 9 minutes.
Both neon lights flashed together when Annette walked into the shop.
Including the flashes Annette saw when she first stepped into the shop,
how many times will she see the 2 neon lights flash together
if she stays in the shop for 1 hour?

(Henry Park P6 SA2 Q13)