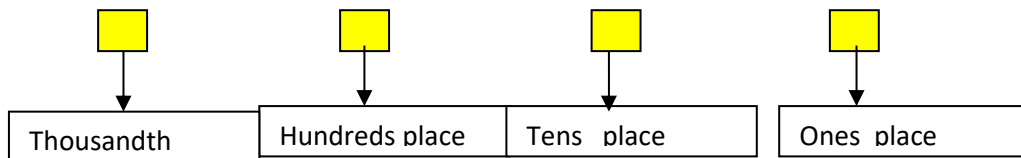## Hand out 1

FINDING THE PASSWORD

Ruhi ,Amisha and Ravi are friends ,they share the same locker in school .

Ruhi said to them I forgot the password of the locker that we are using but remember that it's a 4 digit number and the digit in hundreds place is twice the digit in thousands place

Amisha said sum of digits in tens and thousandth place is equal to difference of digits in hundreds place and ones place and is equal to 5.
 Ravi said I remember that digit in ones place is half of the digit in tens place.

Thousandth	Hundreds place	Tens place	Ones place

1) Below are three statements about the equations . Are the statements correct?
   Circle "Yes" or "No" for each statement.

Statement	Is the statement correct?
(a) Ravi says the equations are $x + y = 5$ and $2x - y = 5$	YES /NO
(b) Amisha says its $x + y = 5$ and $2x - y = 10$	YES /NO
(c) Ruhi says its $x + y = 5$ and $4x - y = 10$	YES /NO

2)   Find the password?
3)   Amisha tells that the average of the digits of pass word is 3 times the digit in ones place is she right .Justify your answer.
4) Suggest another 4 digit password whose mean is 5 and the digits are in
      Arithmetic progression

Hand out 2

READING HABBIT

The numbers of pages in the Harry Potter books are listed in the table KAVITA spends 3 hours every day for reading and she reads 60 pages per hour on each day

While Bindu spends 4 hours per day for reading and she reads 50 pages per hour.

<table>
<tr><td rowspan="2">1) What are the total number of pages In the whole series?

2) Kavita says she will complete reading the series in 11 days ,Is she right justify your answer ?

3) Who will finish reading all the books of the series first? Kavita or Bindu?</td><td>TITLE</td><td>NUMBER OF PAGES(Uk Edition)</td></tr>
<tr><td>Harry Potter and the Philosophers Stone</td><td>223</td></tr>
<tr><td>Harry Potter and the   Chamber of Secrets</td><td>251</td></tr>
<tr><td>Harry Potter and the Prisoner of Azkaban</td><td>317</td></tr>
<tr><td>Harry Potter and the Goblet of Fire</td><td>636</td></tr>
<tr><td>Harry Potter and the Order of the Phoenix</td><td>766</td></tr>
<tr><td>Harry Potter and the Half Blood Prince</td><td>607</td></tr>
<tr><td>Harry Potter and The Deathly Hallows</td><td>607</td></tr>
</table>

Hand out 3

PLACEMENT OR HIGHER EDUCATION

Data related to the students who got placed and those who went in for higher education from 4 different colleges are given below

College	Total Strength	% of students selected in campus placement	% of students selected off campus	% of students opting for higher education
A	1050	32%		
B	1100	30%	66%	
C	700		31%	40%
D		40%	50%	

1) What is the difference between the number of students who were placed from , "in campus placement"and those went in for higher education from college B ?

2) .Average of % of students opting for higher education and % of students selected off campus of college D was 510 .what are total number of students in college D

3) Percentage of students selected off campus of college A are equal to the % of students selected off campus from college D. Based on this information which of the following statements are correct

STATEMENT

(a) More than 180 students from college A went in for higher education .

(b) Less than 200 students of college C went in for higher education .

Hand out 4

TRAFFIC VIOLATIONS

For traffic violations in India a new Bill was passed in September 2019 .As a part of this, traffic violators will now have to face steeper challan's than before.

Penalty	Old Amount (in Rs)	New Amount (in Rs)
Over Speeding	500	5000
Driving without license	500	5000
Driving after disqualification	500	10000
Drunk driving	2000	10000
Not wearing helmet	100	1000
Unauthorised vehicle use	1000	5000

a) A resident has to pay how much fine, if he was driving without license, over speeding and not wearing a helmet, In 2013?

b) Compare the fine he would have paid earlier to the present one for driving after

  Disqualification .Write the ratio?

c) In which all cases of penalty the % of increase in fine is 400?

  .

Hand out 5

MIXTURE

Two jars are having a capacity of 2 and 5 litres respectively and they are filled with mixtures of milk and water.

In the larger jar 30% of the mixture is water while in the smaller jar 50% of the mixture is milk .

The jars are emptied into a 10 litres cask whose remaining capacity is filled with water.

2 litres milk

5 litres milk

10 litres milk

1) Find the percentage of milk in the cask?

2) If the percentage mentioned in the question are exchanged will the new value of percentage of milk in the 10 litres cask would be the same? .

3) if a container initially contains a units of liquid and from this b units of liquid is taken out and again it is refilled with b units of another liquid then after n times operations ,the final volume or quantity of original liquid in the container is given by the formula $[a\left(1-\frac{b}{a}\right)^n]$ based on this formula answer the following

   a) A container has 20 litres of milk .From this container 2 litres of milk was taken out and replaced by water. this process was further repeated two times . How much milk is present now in the container?
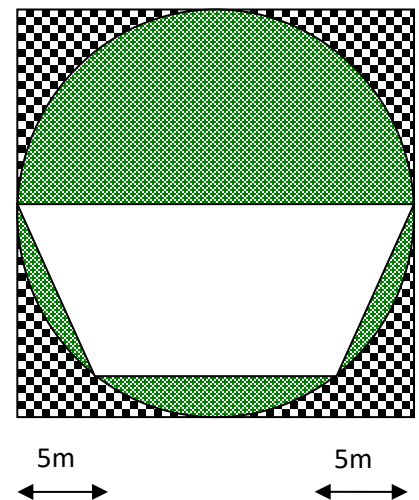
Hand out 6

PARK AND PATH

(I) Jawahar circle is claimed by locals to be the biggest circular park in Asia developed on a highway traffic circle .It is situated along Malviya Nagar near Sanganer Airport on Jawahar lal nehru marg Jaipur,Rajasthan .The diameter of the circle is 452 m

a) Calculate the perimeter of the circular park .

(2) A square Park of side 500 m in the city has a circular garden inside it and a Dias in the form of trapezium, One of the Parallel sides of the trapezium is the diameter of circle and its height is 23 m

a) The dias is to be tiled with tiles of size 10000 cm^2. Find the number of tiles that would be needed

b) In the garden saplings are planted as a part of Environment day ,if each sapling requires an area of 2 m^2
How many saplings can be planted?

5m   5m

Hand out 7

TALLEST FLAGS

A few of the places in India were the tallest flags are hoisted ,are mentioned below
Belagavi- 360.89 F
Belagavi also known as Belgaum in Karnataka is now home to India's tallest
national flag with 9,600 sq ft wide flag on a 110-metre-tall flagpole
Attari Border 360 Feet
The National Flag mounted atop the 360 feet pole with dimensions of
120×80 feet is the India's tallest flag. Country's largest tricolour on the tallest
post has been inaugurated at the Indo Pak Attari Border in Amritsar.
Kolhapur 303 foot
The second tallest Indian flag has been inaugurated in Kolhapur by
CM Devendra Fadnavis. 303 foot flag located opposite the SP office of Kolhapur
inaugurated on 1st May 2017 and is the second tallest in the country. Image
Source -financial express
Ranchi – 293 Feet
The largest Indian national flag on the tallest mast was hoisted on 23 January 2016
by Manohar Parrikar in Pahari Mandir of Ranchi. Pahari Mandir is known for its
historical temple of Lord Shiva.
Hyderabad – 291 Feet
India's newest state of Telangana marked its second year with second tallest flag
in India , The second tallest national flag of India is 291-foot tricolour flag at
Sanjeevaiah Park, on the banks of the historic Hussain Sagar lake of Hyderabad.
Bhopal – 235 Feet (71.628 m)
The capital city of Madhya Pradesh has one of the tallest tricolour at 235 feet
height in front of Mantralaya. This 60 x 40 feet National flag of India is largest
National flag in the state.
206 Feet – Jaipur
Central Park in Jaipur has 206 feet high monumental National flag and is the tallest
tricolour of the Rajasthan.

1) What's the ratio of the heights of flags at Attari and Jaipur?

2) What is the ratio of length to width of the national flag , also find the area of flag at
   Bhopal

3) The height of National flag at Ranchi in metres is
   a) 63.0936 m
   b) 92.3544 m
   c) 89.3064 m
   d) 81.9912 m

4) Ravi is standing in front of the national flag at Telangana and looking at the top of the
   flag ,if angle of elevation is 60^0. How far away from the flag pole is Ravi standing from ?

Hand out 8

Limits of speed

Footspeed, or sprint speed, is the maximum speed at which a human can run. It is affected by many factors, varies greatly throughout the population, and is important in athletics and many sports, such as association football, rugby, American football, track and field, hockey, baseball and basketball

The record was 44.72 km/h (27.8 mph), measured between meter 60 and meter 80 of the 100 meters sprint of the World Championships in Berlin on 16 August 2009 by Usain Bolt.[4][5] (Bolt's *average* speed over the course of this race was 37.58 km/h or 23.35 mph.)[6]

Usain earned the 100 m record with a time of 9.82 seconds if Lewis was in the same race as Bolt in Beijing Lewis would have finished a staggering 10 metres behind

Maximum human sprint speed is strikingly slower than that of many animals. Compared to other land animals, humans are exceptionally capable of endurance, but incapable of great speed.[7] Examples of animals with higher sprinting speeds include cheetahs which can attain short bursts of speed well over 100 km/h (62 mph),[8] the American quarter horse has topped 88 km/h (55 mph),[9] greyhounds can reach 70 km/h (43 mph), and the Mongolian wild ass has been measured at 64 km/h (40 mph).[10] Even the domestic cat may reach 48 km/h (30 mph).[10]

1) From the above data arrive at a relation between km/h and miles per hour(mph)   .1
   km/h =_____miles per hour
   a) 1.5 8
   b) 0.34
   c) 1.92
   d) 0.62

2) How much time did Ussain Bolt take to complete the last 20 m of the 100m sprint of the world championship in Berlin?

3) Ussain Bolts average speed was 37.58 km/h.What would have been the time taken in the first 80 m

4) Based on the data given in the passage .Compare and find the ratio of the fastest animal and the slowest one?

Hand out 9

The London Eye

The London Eye is a cantilevered observation wheel on the South Bank of the River Thames in London. It is Europe's tallest cantilevered observation wheel,[10] and is the most popular paid tourist attraction in the United Kingdom with over 3.75 million visitors annually,[11] and has made many appearances in popular culture.

The structure is 135 metres (443 ft) tall and the wheel has a diameter of 120 metres (394 ft). When it opened to the public in 2000 it was the world's tallest Ferris wheel.

London Eye was the world's tallest Ferris wheel till it was surpassed in 2006 by the 160 Meters (525 ft) tall Star of Nanchang.London Eye is still the world's tallest cantilevered Observation wheel.

1) Find the circumference of London eye
2) Find the ratio of area to circumference of the London eye

3) The prize of tickets for London eye are given below

	Price on the Day	Online Price
Adult (16+)	£30.00	£26.00
Child (3-15)	£24.00	£20.00

The percentage of savings if 2 adults and 2 children take tickets online is 10% is this true ?justify your answer

Hand out 10

SNAKE BOAT RACES

As everybody waits extremely for monsoon, one state has already got its portion of rain. Any guesses for which state I'm talking about? It is none other than KERALA- "God's own country". Offering a view of the swaying palm groves, lakes, rivers, serenity surrounding and diverse aquatic life in a completely different way, this state will begin your monsoon with much fun, pomp and show by "Snake Boat Races" festival. .

Having 400 years back history, there is a famous legend about Snake Boat Races, according to that, the kings of Alleppey (Alappuzha) and the neighboring areas are used to fight with each other in boats on waterways. Once upon a time, the king suffered huge losses and called boat architect to build him in a better way and the "Snake Boat" was born which offered success in every war.

One of the famous lakes for the snake boat race is Punnamada Lake.it is 1.4 km (0.9 Miles) The snake boat which holds the record for winning the most number of trophies is the Karichal Chundan(15 times).PAYIPPADAN CHUNDAN holds the record for being the fastest chundan in the race during 2017 where it had a Heats time of 4m:14s.

a) What would have been the speed of PAYIPPADAN CHUNDAN

b) If the speed of a steamer in still water, the downstream speed and the upstream speed are in AP if the common difference is $2\frac{1}{4}$ m what is the speed of the river ?
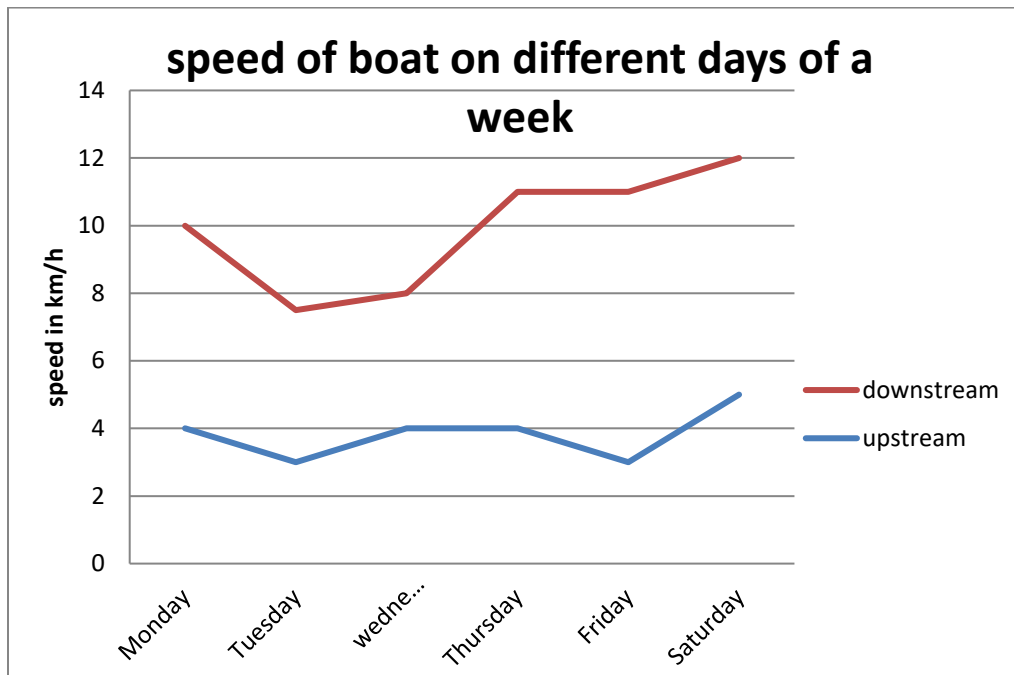
      a) $2\frac{1}{4}$

      b) $2\frac{1}{2}$

      c) 2

      d) $\frac{1}{4}$

c.) Two similar boats, A and B ,start to move towards each other .if they meet when A has travelled 1/4th distance what is the ratio of the upstream speed to the downstream speed of aboat in that river?

d) Observe the line graph and answer the question given below

speed of boat on different days of a week

If Manish travels a certain distance on Wednesday and takes 6 hours more to return to the initial point. How far was the place ,he travelled to? (a) 56km (b) 48 km (c) 50 km (d) 36 km