Meeting 9 Student’s Booklet

ANIMATHS

January 13  2016 @ UCI

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1 Trains of Kittens

Which of the following trains of kittens A - E are more than 50% full? Each 🐱 represents a kitten.
Grown up cats (🐱) come on the trains. They are bigger than kittens, and they occupy two seats each.

For example, the following train is 5/8 full:
It contains 3 kittens and 1 grown up cat.

For each of the following trains F - G, determine whether they are more than 3/4 full or not.
2 The Jumping Kangaroo

María the Kangaroo can jump any number of times following these motions:

- 2 units Sideways, to the right.
- 6 units Forward.
- 3 units Backwards.

María starts in the lower left corner of the field. She is represented by the following symbol: ▲

In the field, there are a total of 5 plants labeled A to E. Can you tell which plants is María able to grab?
Challenge:

Recall that María the Kangaroo can perform the following moves:

- 2 units sideways, to the right.
- 6 units forward.
- 3 units backwards.

1) What is the least number of moves that will allow María to eat plants C, D and B?

2) In how many different ways can María reach B?

Note: María should not step out of the field drawn here.
3 Fruit flies

Fruits attract fruit flies!

Each banana attracts 15 flies.

Each gorilla has a bag with 20 bananas.

Each mango attracts 11 flies.

Each barrel contains 30 mangos.

There are three rooms in a house (A, B and C), having different combinations of bananas, mangos, gorillas and barrels. Which room will have the most and least number of fruit flies?
3 Fruit flies

Challenge:

Recall that

- Each banana attracts 15 flies.
- Each gorilla has a bag with 20 bananas.
- Each mango attracts 11 flies.
- Each barrel contains 30 mangos.

1) Create a room that attracts exactly 48 flies.

2) Create a room that attracts exactly 52 flies.

3) Explain why you cannot create a room that attracts exactly 50 flies.
4 Kings of the Jungle

Elephants, hippos and buffalos play tug of war in the jungle. The first two chords are perfectly balanced with the forces applied by the animals on each side.

**MATCH 1**
Tie

**MATCH 2**
Tie

How many bisons do you need to balance a team of an elephant and a hippo?

How many hippos do you need to balance a team of two elephants?
4 Kings of the Jungle

Challenge
Recall that the first two matches are tied.

Can you figure out which team would win the fifth and sixth pulling competitions?

MATCH 1
Tie

MATCH 2
Tie

MATCH 5
Who wins?

MATCH 6
Who wins?