Halloween Math

October 30, 2016

1.) What is the biggest number of pieces you can get if you cut a round pumpkin pie using 3 straight cuts?

7 (Shape of an A)

2.) Can you draw a ghostly shape that you can cut into four parts using only one cut? Draw the shape and cut.

Any shape with 3 protrusions that are cut off, e.g., ghosts in Pacman

3.) The witch Bellatrix is practicing spells that can turn one creature into another:

Mouse → Bat

Cat → Rat

Spider -> Raven

Bat -> Cat

Raven -> Mouse

Rat -> Mouse

a.) Using only the given spells, how many different creatures can she turn a cat into?

3 other animals

b.) Which creature(s) can she turn into the fewest things?

Any creature in the loop, i.e., Mouse, Bat, Cat, Rat

c.) Which creature can she turn into the most other creatures?

Spider

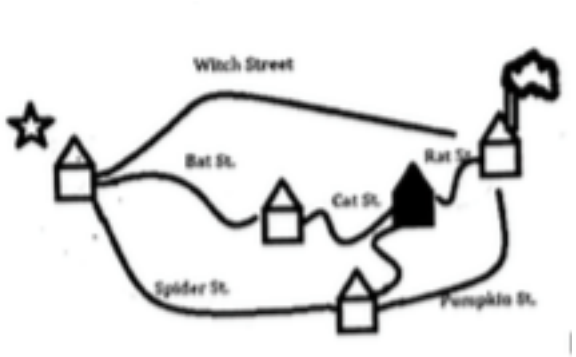
d.) What additional spell would help her to turn any creature into any other through a series of spells? (Hint: Draw a picture)

Any spell that connects the loop to the spider, e.g., Bat -> Spider

4.) Courtney is trying to figure out a costume to wear tonight. She needs to pick one shirt and one pair of pants. In her closet she has a black, a blue, a green, and a white shirt. She also has white, black, and blue pants. How many different costumes can Courtney make?

4 Shirt * 3 Pants = 12 Combinations

5.) Look at the map below:



a.) How many different paths could Igor take from his house (with the star) to the haunted house with the chimney, without re-visiting a house or street?

5 Paths

b.) Igor needs to pick up Josh along the way (the shaded house). How many different paths can he take now (no re-visiting a house or a street)?

3 paths

Challenge Problems:

1.) 3 Boys carve 3 pumpkins in 3 days.

a.) How many days does it take 1 boy to carve 1 pumpkin?

3 Days

b.) How many pumpkins can that same boy carve in one month?

10 Pumpkins

c.) How long will it take 9 boys to carve 3 pumpkins?

1 Day

A trick-or-treater wants to cross a river and take with him a werewolf, a black cat, and a pumpkin pie. There is a boat that can fit himself plus either the werewolf, the black cat, or the pumpkin pie. If the werewolf and the black cat are alone on one shore, the werewolf will eat the black cat. If the black cat and the pumpkin pie are alone on the shore, the black cat will eat the pumpkin pie.

How can the trick-or-eater bring the werewolf, the black cat, and the pumpkin pie across the river?

Bring Cat across, return alone. Bring Werewolf across, bring back Cat. Bring pie across, return alone. Bring Cat across.