

# Halloween Math Fun!

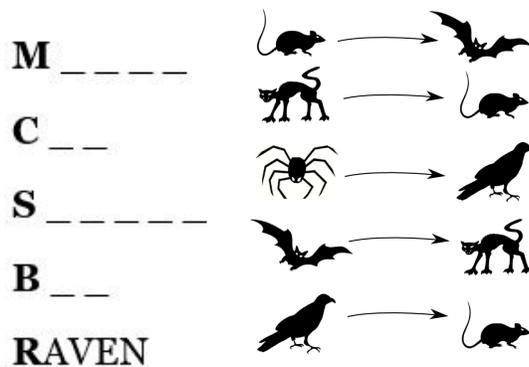
October 25, 2015

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



2. Can you bake a ghost-shaped cake in a shape that you can cut into 4 parts by making a single cut? Draw the shape and the cut.

3. The evil witch Bellatrix is practicing spells that turn creatures into other creatures. She knows 5 spells which can turn the creature on the left into the one on right. Fill in the blanks to get the names of each creature.



a. Using only these 5 spells, how many creatures can the evil witch Bellatrix turn a cat into?

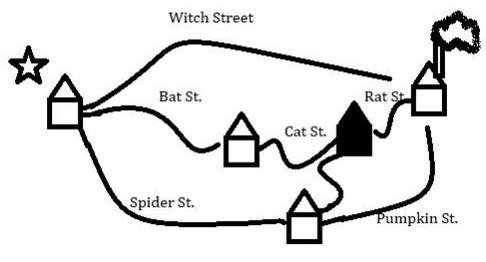
b. Which creature(s) can she turn into the fewest things?

c. What about the most?

d. CHALLENGE PROBLEM: Help Bellatrix create one additional spell which would allow you to turn any creature into any other creature (by doing several existing spells in a row, if necessary).

4. Anna is trying to figure out a costume to wear tonight, which will consist of one shirt and one pair of pants. In her closet, she has a black shirt and orange shirt. She also has purple pants, green pants, and yellow pants. How many different costumes can Anna make with the clothes in her closet?

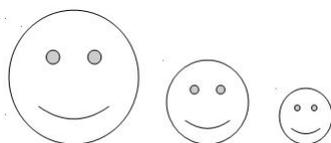
5. Here is a map of some streets and houses.



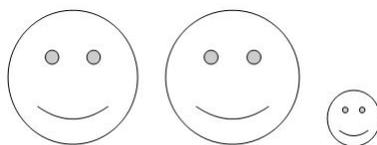
a. How many different paths could Trevor take from his house (with the star) to the big spooky house (with the chimney), without re-visiting a house or a street?

b. Trevor is too afraid to go to the spooky house alone, so he needs to stop by Roger's house (the black one) on the way so Roger will join him. How many different paths can he take now (again without re-visiting a house or a street)?

6. Max carved a large pumpkin, a medium pumpkin, and a small pumpkin (they are drawn below as smiley faces). He gave them to Candace, who wants to arrange them in a row in front of her house. How many different ways can Candace arrange these three pumpkins?



7. How many ways can Candace arrange the pumpkins in a row if two of them are the same?



8. After going trick or treating, Viola has a big bag of skittles. She puts 10 green and 10 red skittles in a bag, and lets Lisa pick some out.



a. How many skittles does Lisa need to take out to make sure she picks at least 2 skittles that are the SAME color?

b. How many skittles does Lisa need to take out to make sure she picks at least 2 skittles that are red?

b. How many skittles does Lisa need to take out to make sure she picks at least 3 skittles that are the same color?

**CHALLENGE PROBLEMS:**

1. 3 boys carve 3 pumpkins in 3 days.

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

(b) How many pumpkins will 1 boy carve in 12 days?

(c) How many pumpkins will 12 boys carve in 12 days?

2. Samantha is trying to figure out a costume to wear tonight, which will consist of one hat, one shirt, and one pair of pants. If she has a choice of 2 hats, 3 shirts, and 3 pairs of pants, how many different costumes can Samantha make?

Name:

### Homework

1. Suppose your mom bakes a cake in the shape of the first letter of your (first) name. What is the biggest number of parts you can cut it into by making one straight cut? First, draw the first letter of your name on the right. (Use the shapes of the letters on the left as an example.)



2. Four different bats line up in a row. How many different ways can they line up? Name the bats before solving the problems.

