Halloween Math Fun!

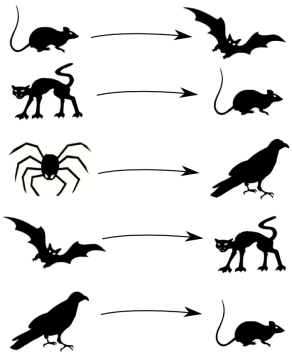
October 31, 2010

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

Solution: 7

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 Katja 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:



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

Solution: 2

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

Solution: **4**

c. CHALLENGE PROBLEM: What are some spells she could learn so that she would be able to turn any of these creatures into any other?

Solution: Turn a cat, bat, or mouse into a spider.

4. April 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 1 hat, 2 shirts, and 3 pairs of pants, how many different costumes can April make?

Solution: **6**

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

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

Solution: 5

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

Solution: 3

6. Below are three pumpkins that Travis carved. He gave them to Katja, who wants to arrange them in a row in front of her house. How many different ways can Katja arrange these three pumpkins?

Solution: 6

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

Solution: 3

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

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

Solution: 3

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

Solution: 5

CHALLENGE PROBLEMS:

1. 3 boys carve 3 pumpkins in 3 days. How many pumpkins will 12 boys carve in 12 days?

Solution: 48

2. April 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, 4 shirts, and 3 pairs of pants, how many different costumes can April make?

Solution: 24