High School:
Costumes

1. Luke is making a robot costume for his little brother. Luke is using flexible tubing to create the arms and legs of the robot costume. His brother stands 42 inches tall, his legs are 21 inches long and his arms are 18 inches long. The tubing is sold in 4-, 6- and 8-feet sections. You cannot purchase anything less than 4 feet. Luke claims that a 6-foot section is sufficient and that the lack in length will not be noticeable overall. Do you agree or disagree with Luke's claim? Justify your decision. Justify your answer.

2. Gina is making a monster costume for her cousin. The head is 20 inches wide and 24 inches tall. She is adding spikes to 60% of the head. Each spike has a diameter of 3 inches. How many spikes should she make? Justify your answer.

3. Lily is making costumes for children in her neighborhood. There are 200 children in her neighborhood. Table 1 provides information about each type of costume.

Table 1: Costumes

Name of Costume	Percent of Children Who Want this Costume	Amount of Time Needed to Make (in minutes)	Cost to Make	Lily's Selling Price
Octopus	15%	30	$4	$10
Astronaut	22%	480	$18	$25
Robot	18%	300	$12	$20

What is Lily's hourly pay rate if she successfully makes and sells all of the possible costumes for her neighborhood? Justify your answer.