High School:

National Noodle Day

1. It is reported that just over 5 billion servings of instant noodles (ramen packets) are consumed in the US each year. The average price per packet is 60¢. Josh claims that this represents over $30 million in revenue each year. Do you agree or disagree with Josh's claim? Justify your decision.

2. Kotoyamen Ramen sells one bowl of ramen soup for $22. The total expenses for labor and ingredients are $7 per bowl. In one week, the restaurant sold 85 bowls of ramen soup. What is their revenue for this soup? Justify your answer.

3. The classic noodle question: Given *n* number of cooked noodles in a dish, randomly select two loose ends and tie them together. Continue the process of selecting and tying two loose ends together until all noodle ends are tied to one other noodle. What is the probability that all noodle ends are tied to another loose end in such a way that it forms a circle or loop? The function $f(n) \approx \sqrt{\frac{\pi}{4n}}$ can be used to model the probability *f(n)* based on (n) number of noodles. What number of noodles are needed for the probability to be greater than 50%? Justify your decision.