W-A1 Algebra 1 Week 22 2/28

1.) Number of minutes cried by Nate (per night)

2020: 64
2024: 98

$\frac{\text{New} - \text{old}}{\text{old}} * 100$

$\frac{98-64}{64} * 100 =$ 53% increase

2.) The number of students that respect Nate

Sept 12th: 186
Feb 28th: 24

$\frac{\text{New} - \text{old}}{\text{old}} * 100\%$

$\frac{24-186}{186} * 100\% =$ 87% decrease

3.) Number of donuts eaten by Nate (in Feb)

2020: 1,082
2024: 1,974

$\frac{\text{New} - \text{old}}{\text{old}} * 100\%$

$\frac{1974-1082}{1082} * 100\%$ 82% increase

Probability

Probability: $\frac{\#\text{ of desired instances}}{\#\text{ of possibilites}}$

Candy

Snickers	14
Reese's	18
Strawberry gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10

total = 60

$P(\text{Reese's}) = \frac{18 \div 6}{60 \div 6} = \frac{3}{10}$

$P(\text{kit kat}) = \frac{12 \div 12}{60 \div 12} = \frac{1}{5}$

$P(\text{Strawberry gummie candies you get from Asian markets... those are pretty good}) = \frac{6 \div 6}{60 \div 6} = \frac{1}{10}$

Candy	
Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

$$P(\text{Snickers or Twix}) = \frac{14+10}{60}$$

$$\frac{24 \div 12}{60 \div 12} = \boxed{\frac{2}{5}}$$

$$P(\text{Not Snickers}) = \frac{60-14}{60}$$

$$\frac{46 \div 2}{60 \div 2} = \boxed{\frac{23}{30}}$$

Candy	
Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

1.) $P(\text{Twix}) = \frac{10 \div 10}{60 \div 10} = \boxed{\frac{1}{6}}$

2.) $P(\text{Not kit kat}) \quad \frac{60-12}{60} = \frac{48 \div 12}{60 \div 12}$

$\boxed{\frac{4}{5}}$

3.) $P(\text{Reese's or Snickers})$

$$\frac{18+14}{60} = \frac{32 \div 4}{60 \div 4} = \boxed{\frac{8}{15}}$$

4.) $P(\text{twizzlers})$

$\boxed{0}$

Candy	
Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

Law of Independent Assortment

Rob a bank

$\frac{3}{5} * \frac{756}{300,000,000} \quad \frac{2268}{1,500,000,000}$

Become a billionaire

free throw → 3pt

$\frac{9}{10} * \frac{2}{5} = \frac{18}{50} = 36\%$

Candy	
Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

P(Reese's and then snickers with replacement)

P(Reese's) P(snickers)

$\frac{18}{60} = \frac{3}{10} \quad \frac{14}{60} = \frac{7}{30}$

$\frac{3}{10} * \frac{7}{30} = \boxed{\frac{7}{100}}$ (10)

P(Strawberry Gummie candies you get from Asian markets... those are pretty good and then kit kat w/ replacement)

$\frac{6}{60} = \frac{1}{10} \quad \frac{12}{60} = \frac{1}{5}$

$\frac{1}{10} * \frac{1}{5} = \boxed{\frac{1}{50}}$

Candy	
Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

$\frac{4}{9}$

$\frac{4}{8}$

$\frac{3}{8}$

P(Snickers and then a Twix) without replacement

P(Snick) $\frac{14}{60} = \frac{7}{30}$

P(Twix) $= \frac{10}{59}$

$\frac{7}{\cancel{30}_{3}} * \frac{\cancel{10}^{1}}{59} = \frac{7}{177}$

P(Reese's and then Reese's) without replacement

$\frac{18 \div 6}{60 \div 6} = \frac{3}{10}$

$\frac{17}{59}$

$\frac{3}{10} * \frac{17}{59} = \frac{51}{590}$

Candy

Snickers	14
Reese's	18
Strawberry Gummie candies you get from Asian markets... those are pretty good	6
Kit kat	12
+ Twix	10
Total	60

P(Strawberry and then snickers with replacement)

$\frac{6}{60} = \frac{1}{10}$ $\frac{14}{60} = \frac{7}{30}$

$\frac{1}{10} * \frac{7}{30} = \boxed{\frac{7}{300}}$

P(Twix and then kit kat without replacement)

$\frac{10}{60} = \frac{1}{6}$ $\frac{12}{59}$

$\frac{1}{\frac{6}{1}} * \frac{12^{2}}{59} = \boxed{\frac{2}{59}}$