W-41 Algebra 1 3/2

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

2020: 64 old
2022: 98 new

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

$\frac{98-64}{64} * 100\% = \frac{34}{64} * 100\% = 53\%$ increase

2.) The number of students that respect Nate.

Sep 10th: 186
March 2nd: 24

$\frac{24-186}{186} = \frac{-162}{186} * 100\% = -87\%$

87% decrease

3.) Number of donuts eaten by Nate.

2020: 1,082
2022: 874

$\frac{874-1082}{1082} = \frac{-208}{1082} * 100\% = 19\%$ decrease

Candy	
Kit kat	12
Hershey	10
Reese's	18
Sour Patch	6
Peanut M&Ms	14
total =	60

$\text{Probability} = \frac{\#\text{ of instances}}{\#\text{ of possibilities (total)}}$

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

$P(\text{hershey}) = \frac{10 \div 10}{60 \div 10} = \frac{1}{6}$

$P(\text{Sour Patch or Peanut M\&Ms})$

$\frac{6+14}{60} = \frac{20 \div 20}{60 \div 20} = \frac{1}{3}$

Candy	
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Peanut M&Ms	14
total =	60

1.) P(Reese's) $\frac{18}{60} \overset{\div 6}{=} \frac{3}{10} = 30\%$ 0.3

2.) P(not hershey's) $\frac{60-10}{60} = \frac{50 \div 10}{60 \div 10} = \frac{5}{6}$

3.) P(Reese's or kit kat) $\frac{18+12}{60} = \frac{30 \div 30}{60 \div 30} = \frac{1}{2}$

4.) P(twizzlers) $\frac{0}{60} = 0$

Law of Independent Assortment

Candy	
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Reese's	18
Sour Patch	6
Peanut M&Ms	14
total =	60

P(Reese's and then Peanut MMs with replacement)

$\frac{18 \div 6}{60 \div 6} = \frac{3}{10}$ $\frac{14 \div 2}{60 \div 2} = \frac{7}{30}$

$\frac{3}{10} \overset{\div 3}{*} \frac{7}{30 \div 3}$ $\frac{1}{10} * \frac{7}{10} = \frac{7}{100}$

P(Sour Patch and then hershey with replacement)

$\frac{6 \div 6}{60 \div 6} = \frac{1}{10}$ $\frac{10 \div 10}{60 \div 10} = \frac{1}{6}$

$\frac{1}{10} * \frac{1}{6} = \frac{1}{60}$

Candy	
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Peanut M&Ms	14
total =	60

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

$\frac{12 \div 12}{60 \div 12} = \frac{1}{5}$ $\quad \frac{18}{59}$

$\frac{1}{5} * \frac{18}{59} = \boxed{\frac{18}{295}}$

P(hershey and then hershey without replacement)

$\frac{10 \div 10}{60 \div 10} = \frac{1}{6}$ $\quad \frac{9}{59}$

$\frac{1}{6} * \frac{9 \div 3}{59 \div 3}$ $\quad \frac{1}{2} * \frac{3}{59} = \boxed{\frac{3}{118}}$

P(Peanut MM's and then not Reese's without replacement)

$\frac{14 \div 2}{60 \div 2} = \frac{7}{30}$ $\quad \frac{59-18}{59} = \frac{41}{59}$

$\frac{7}{30} * \frac{41}{59} = \boxed{\frac{287}{1770}}$