

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

2020: 64

2023: 98

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

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

2.) The number of students that respect Nate.

Sept 9<sup>th</sup>: 186

March 2<sup>nd</sup>: 24

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

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

$$\boxed{87\% \text{ decrease}}$$

3.) Number of donuts eaten by Nate

2020: 1,082

2023: 1,974

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

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

Probability

Candy

Air Heads	6
Hershey's	10
Twix	12
Skittles	14
Kit kat	18
<u>Total</u>	<u>60</u>

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

$$P(\text{kit kat}) = \frac{18 \div 6}{60 \div 6} = \boxed{\frac{3}{10}}$$

$$P(\text{twix}) = \frac{12 \div 12}{60 \div 12} = \boxed{\frac{1}{5}}$$

$$P(\text{Air heads or Skittles}) = \frac{6+14}{60}$$

$$\frac{20 \div 20}{60 \div 20} = \boxed{\frac{1}{3}}$$

Candy

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<u>Total</u>	60

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

2.)  $P(\text{not twix}) = \frac{60-12}{60} = \frac{48 \div 12}{60 \div 12} = \boxed{\frac{4}{5}}$

3.)  $P(\text{kit kat or skittles}) = \frac{18+14}{60} = \frac{32 \div 4}{60 \div 4} = \boxed{\frac{8}{15}}$

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

Candy

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Law of Independent Assortment

♥  $\frac{1}{4} \cdot \frac{1}{6} = \frac{1}{24}$

$P(\text{kitkat and then skittles (with replacement)})$

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

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

$P(\text{Airheads and then twix with replacement})$

Airheads  $\frac{6 \div 6}{60 \div 6} = \frac{1}{10}$      Twix  $\frac{12 \div 12}{60 \div 12} = \frac{1}{5}$

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

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P(Skittles and then kit kat  
(without replacement))

$$\begin{array}{cc} \text{skittles} & \text{kit kat} \\ \frac{14 \div 2}{60 \div 2} = \frac{7}{30} & \frac{18}{59} \end{array}$$

$$\frac{7}{30} * \frac{18}{59} \div 6$$

$$\frac{7}{5} * \frac{3}{59} = \boxed{\frac{21}{295}}$$

P(twix and then a twix  
(without replacement))

$$\frac{12 \div 12}{60 \div 12} = \frac{1}{5} \quad \frac{11}{59}$$

$$\frac{1}{5} * \frac{11}{59} = \boxed{\frac{11}{295}}$$

<u>Candy</u>	
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1) P(Air heads and the skittles  
with replacement)

$$\frac{6 \div 6}{60 \div 6} = \frac{1}{10} \quad \frac{14 \div 2}{60 \div 2} = \frac{7}{30}$$

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

2) P(Hershey's and then kit kat  
(without replacement))

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

$$\frac{18}{59}$$

$$\frac{1}{6} * \frac{18 \div 6}{59} = \frac{1}{1} * \frac{3}{59} = \boxed{\frac{3}{59}}$$

