



**HERSHEYPARK**  
GROUPS

# STATISTIC WORKSHEET

1) The Descent is open from 6 PM to 11 PM, and every 5 minutes, a group of 12 guests is let into the haunted house. If there are 58 people in line still at 11 PM, how many people total will have gone through The Descent throughout the entire night, including those still in line at 11 PM?

2) If there are 1627 kids that go through Treatville in a day, and there are 13 candy stations, how many pieces of candy will they need if they give out 1 piece of candy at 8 of the stations and 2 pieces of candy at the other 5 stations?

3) In order to power the fog machines across the park, we need 2 gallons of fog juice per machine per day. If there are 45 fog machines across the park, how many gallons of fog juice are needed for 8 days of operation?

4) Tickets for admission to the park cost \$59 a person. Add-on tickets to get into the four Dark Nights haunted houses cost \$25 a person. Unlimited Fast Track passes for the rides cost \$130 a person. A family of eight is going to Hersheypark for Dark Nights. Six of them are getting Unlimited Fast Track passes, and 5 of them are buying add-on tickets for the haunted houses. How much will they be spending as an entire family, including tax if the sales tax is 6%?

5) On September 17, Hersheypark is open from 2 PM to 10 PM. The sun sets on this day at 7:12 PM. If a guest wants to ride Storm Runner at night, at what percentage of the operating hours do they have the ability to do so?

6) Candymonium is one of the few roller coasters that can run safely during Christmas Candylane due to its design. It can run at a temperature as cold as 32 degrees. Use the following equation for Conservation of Energy, which includes potential energy, kinetic energy, and thermal energy that is added to the system shown here:

$$mgh_1 + \frac{1}{2}mv_1^2 = mgh_2 + \frac{1}{2}mv_2^2 - mTC$$

Assuming zero friction, and temperature only affecting the energy on the drop due to the controlled speed of the lift hill, determine what the top speed of Candymonium is at the bottom of the first drop at both a temperature of 80 degrees Fahrenheit and a temperature of 32 degrees Fahrenheit.

Variables Needed:

Mass of Train,  $m = 14000 \text{ lb}$

Gravitational Acceleration,  $g = 32.2 \frac{\text{ft}}{\text{s}^2}$

Height at Top of Drop,  $h_1 = 210 \text{ ft}$

Height at Bottom of Drop,  $h_2 = 0 \text{ ft}$

Lift Hill Velocity,  $v_1 = 8 \text{ mph} = 11.73 \frac{\text{ft}}{\text{s}}$

Specific Heat of Polyurethane (material wheels are made of),  $C = 0.43 \frac{\text{Btu}}{\text{lb} \cdot \text{F}}$

Temperature,  $T_2 = 32 \text{ or } 45 \text{ degrees F}$

What conclusions can you make with the solution? How does temperature affect the speed of a roller coaster?

One thing to note; friction is unavoidable in a real life calculation of this type of data. Thermal energy is lost quickly in cold temperatures, which allows friction to counteract the forces of the ride vehicle more easily.

This will cause the overall ride to slow down more and more as it goes on. During the summer, thermal energy is conserved better, as temperatures are consistently higher. This causes faster overall ride cycles, as friction is not as counteractive in those situations.

7) Lights are strung up all around The Hollow for the NOEL lights show for Christmas Candylane. There are 33 separate trees that need to be strung up; 19 of them are larger trees, and 14 of them are smaller trees. There should be 25 strands of lights for each large tree, and 15 strands of lights for each small tree.  $\frac{1}{3}$  of the strands on the small trees and 8 of the strands on the large trees should all be red. How many red light strands will you need for all the trees, and what percentage of all the light strands will be red?

8) The Carrousel is a very popular attraction during Christmas Candylane as well as every season at Hersheypark. Each ride can hold up to 70 guests per ride cycle. It takes about 3 minutes for each loading/ride cycle. If the hourly amount of riders for the first hour of the day are 757, what percentage of the theoretical hourly capacity was met?

9) Santa's Reindeer are visiting from the North Pole during Christmas Candylane. You can pay \$3.50 to feed the reindeer, and \$2.50 to pet the reindeer. 17,000 guests are in the park on a very busy Saturday night, and all of them want to see the reindeer. 32% of the guests just want to feed them, 24% of the guests just want to pet them, and 44% of them want to both pet and feed them. How much money will Hersheypark make that night from Santa's Reindeer?

10) Hot chocolate is a very popular commodity during Christmas Candylane. Each day, there are 5 stands around the park. For each weekday that CCL is open, they need roughly 4 gallons of hot chocolate per stand. For each Sunday, they need roughly 6 gallons of hot chocolate per stand. For each Saturday, they need roughly 11 gallons of hot chocolate. If there are 8 Saturday's, 7 Sunday's and 30 weekdays, roughly how many gallons of hot chocolate will be needed for the entirety of Christmas Candylane?

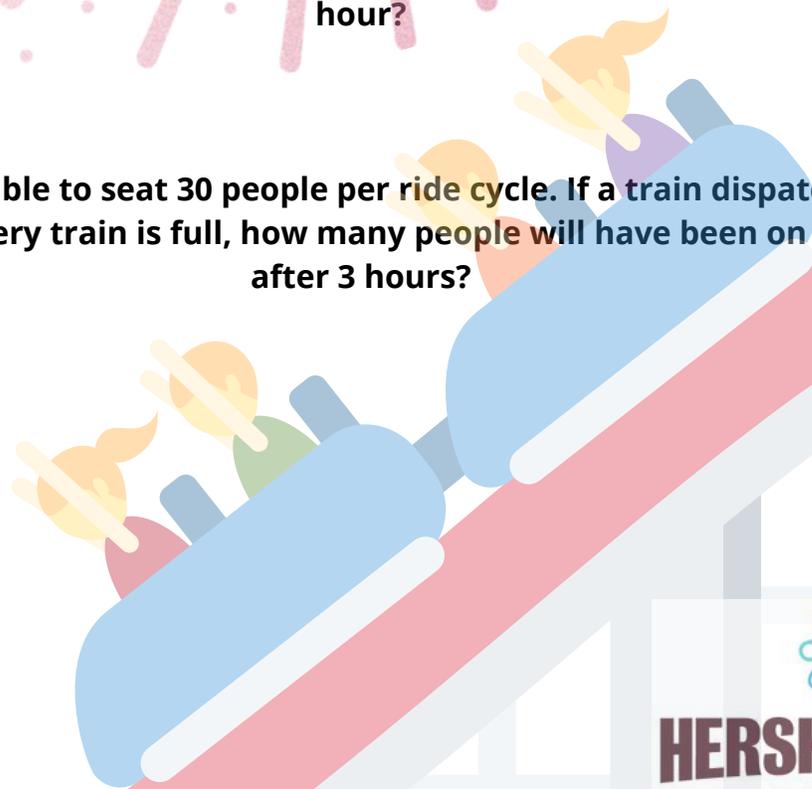
11) The queue line for Skeyrush has multiple switchbacks that guests must wait in before they ride. If each switchback takes 8 minutes to walk through, and it takes 10 minutes to get on the ride, how long will it take for a guest to board Skeyrush if they have to wait through 4.25 switchbacks?

12) The Claw sits 32 people maximum during a ride cycle. If the ride runs 13 cycles in an hour, and 7 of them are full and 6 of them are  $\frac{3}{4}$ ths full, how many guests have been on The Claw in that hour?

13) sooperdooperLooper has been open since May 1977. As of August 2022, how many months has it been since the sooperdooperLooper opened to the public?

14) Coal Cracker has 26 boats running on it at a time. One boat leaves the station every 10 seconds. How many boats leave in an hour? If 60% of the boats have 4 people and 40% of them have 2 people, how many people will have rode in that hour?

15) Trailblazer is able to seat 30 people per ride cycle. If a train dispatches every 3 minutes, and every train is full, how many people will have been on Trailblazer after 3 hours?



# WORK PAGE

