**Part​ ​1**

Emma and her friends can only camp for two days but she has found out that some people camp for weeks at a time! She called the state park and found out that typically, 60% of people only come to the park for the day. 25% stay for less than a week and 15% stay for weeks. She also found out that on average 1500 people come to the state park in one day. She guesses that 225 of them probably are staying for a long time. Can you help her figure out how many of the other people are only there for a day or a few days?

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Length of Stay** | **Percentage** | **Number of People** |
| 0 | More than one week | 15% | 225 |
| 1 | More than a day | 25% | **???** |
| 2 | Only one day | 60% | **???** |

**Solution**

**Step 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Length of Stay** | **Percentage** | **Number of People** |
| 0 | More than one week | 15% | 225 |
| 1 | More than a day | 25% | **375** |
| 2 | Only one day | 60% | **???** |

**Step 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Percentage** | **People** |
| 0 | 15% | 225 |
| 1 | 25% | **375** |
| 2 | 60% | **900** |

**Part​ ​2**

In preparing for camping, Emma’s friends Tasha and Zach have been arguing over who is better at making s’mores. Tasha has suggested that they use math to figure out who is fastest. Tasha already has a function for how quickly she can make s’mores. It is given below. Help Emma make a function for Zach given that we know how many minutes it takes him to make 9 s’mores and it takes 1 minute for him to setup.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Minutes (y)** | **S’mores (x)** | **Set-up (b)** | **Slope (m)** |
| **0** | Tasha | 8 | 2 | 4 | 2 |
| **1** | Zach | 9 | 2 | 1 | **???** |

**Solution**

**Step 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Minutes (y)** | **S’mores (x)** | **Set-up (b)** | **Slope (m)** |
| **0** | Tasha | 8 | 2 | 4 | 2 |
| **1** | Zach | 9 | 2 | 1 | **4** |

Tasha’s equation:

For Zach’s equation…

minutes per s'more

So the equation for Zach’s time is **T**=4**s** + 1, when **T** stands for the amount of time, in minutes, it takes for them to make all the s’mores, and **s** stands for the amount of s’mores they are making.

**Part​ ​3**

Emma wants to use the equation to figure out how long it takes Tasha and Zach to make 10 s’mores each. Help Emma fill in how long it takes Tasha to make different amounts of s’mores.

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Amount of S’mores (s)** | **Time (T)** |
| **0** | Tasha | **s =** 0 | 4 |
| **1** | Tasha | **s =** 10 | **???** |

**Solution**

**Step 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Amount of S’mores (s)** | **Time (T)** |
| **0** | Tasha | **s =** 0 | 4 |
| **1** | Tasha | **s =** 10 | **24** |

Using Tasha’s equation of:  **T** = 2**s** + 4

Step Zero:  T = 2(0) + 4

Step One...

**s =** 10

**T** = 2(**s)** + 4

**T** = 2(10)+ 4

**T** = 20 + 4

**T** = 24

It takes Tasha 24 minutes to make ten s’mores.

**Part​ ​4**

To compare how quickly Tasha and Zach can make s’mores, Emma has to figure out how long it takes Zach to make 10 s’mores using Zach’s equation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Amount of S’mores (s)** | **Time (T)** |
| **0** | Zach | **s =** 0 | 1 |
| **1** | Zach | **s =** 10 | **???** |

**Solution**

**Step 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **S’more Maker** | **Amount of S’mores (s)** | **Time (T)** |
| **0** | Zach | **s =** 0 | 1 |
| **1** | Zach | **s =** 10 | **41** |

Using Zach’s equation of:  **T** = 4**s** + 1.

Step Zero:  T = 4 (0) + 1

Step One...

**s =** 10

**T** = 4(**s)** + 1

**T** = 4(10)+ 1

**T** = 40 + 1

**T** = 41

It takes Zach 41 minutes to make ten s’mores.

While Zach is faster at setting the s’more station up, Tasha can actually make more s’mores faster when the amount of s’mores made increases.

**Part ​5**

Zach, Ashley, and Tasha are competitive. They held a race to see which of them could setup their tents faster! But something is drastically gone wrong with Emma’s stopwatch. Rather than giving answers that make sense, the stopwatch has recorded the times as improper fractions. The stopwatch says it took Zach 22/6 minutes to set up the tent, while it took Tasha 18/4 minutes. Ashley’s time is the only time that came out in a whole number Emma is unsure of converting the times for Zach and Tasha back to mixed fractions which are more understandable -- can you help her?

|  |  |  |
| --- | --- | --- |
| **Step** | **Improper Fraction** | **Mixed Fraction** |
| 0 |  | 3 |
| 1 |  | **???** |
| 2 |  | **???** |
| 3 |  | **???** |

**Solution**

**Step 1**

|  |  |  |
| --- | --- | --- |
| **Step** | **Improper Fraction** | **Mixed Fraction** |
| 0 |  | 3 |
| 1 |  |  |
| 2 |  | **???** |
| 3 |  | **???** |

**Step 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Improper Fraction** | **Mixed Fraction** |
| 0 |  | 3 |
| 1 |  |  |
| 2 |  |  |
| 3 |  | **???** |

**Step 3**

|  |  |  |
| --- | --- | --- |
| **Step** | **Improper Fraction** | **Mixed Fraction** |
| 0 |  | 3 |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

**Part​ 6**

Emma and her friends found a very interesting plant while they were camping, and decided to put it in a pot and take it home! After some research, they discovered that the plant they found turned out to be the fastest-growing species of pine tree in the world, which grows at a rate of 3 feet per year. Emma and her friends want to plant it but they need to wait until it has grown 20 inches. It is currently 10 inches. Emma wants to figure out how long it has been alive and if they can plant it in 8 months, which is when summer will be.

|  |  |  |
| --- | --- | --- |
| **Step** | **Pine Tree Growth** | **Time** |
| 0 | 3 feet | 1 year |
| 1 | 10 inches | **???** |
| 2 | **???** | 8 months |

**Solution**

**Step 1**

|  |  |  |
| --- | --- | --- |
| **Step** | **Pine Tree Growth** | **Time** |
| 0 | 3 feet | 1 year |
| 1 | 10 inches |  |
| 2 | **???** | 8 months |

**Step 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Pine Tree Growth** | **Time** |
| 0 | 3 feet | 1 year |
| 1 | 10 inches |  |
| 2 |  | 8 months |