

## Calculating Elapse Time

There are many situations where we must calculate the amount of time that has taken place.

**Bus Schedule 1: Local Bus # 24 leaves Port Authority at 7:03 a.m. and arrives in Atlantic City at 10:33 a.m.. How long was the trip?**

Draw a clock that represent the time when the bus left Port Authority on the second clock.  
Draw a clock that represent the time when the bus arrived in Atlantic City.

By starting with the bottom clock estimate the number of full hours between the start time and end time by looking at the clock. (Around 3 hours or 4 hours) Is the trip going to be more or less than this estimate? (More than 3 but less than 4) Why? (If it were 3 hours then the trip would end at 10:03, or if it were 4 hours it would end at 11:03. How much more or less than the estimate is the exact trip? ( $\frac{1}{2}$  hour) How long is the trip? ( $3 \frac{1}{2}$  hours)

Place the two times in the time slots to the right of the clock. Let's try to subtract the

10 : 33

times.  $\underline{-7 : 03}$ .

3 : 30

**Bus Schedule 2: Express Bus #48 leaves Port Authority at 9:34 a.m. and arrives at Atlantic City at 11:04 a.m. How long was the trip?**

Draw a clock that represent the time when the bus left Port Authority on the second clock.  
Draw a clock that represent the time when the bus arrived in Atlantic City.

By starting with the bottom clock estimate the number of full hours between the start time and end time by looking at the clock. (More than 1 but less than 2 hours) Explain why your answer is in between. (If it were 1 hour then the trip would end at 10:34, or if it were 2 hours it would end at 11:04. The trip ended between those times. How much more or less than the estimate is the exact trip? ( $\frac{1}{2}$  hour) How long is the trip? ( $1 \frac{1}{2}$  hours)

Place the two times in the time slots to the right of the clock. Let's try to subtract the

11 : 04

10 : 64

times.  $\underline{-9 : 34}$ . Notice this time that you will have to rename the top time as  $\underline{-9 : 34}$

?

1 : 30

**Bus Schedule 3: Express Bus #72 was scheduled to leave Port Authority at 10:44 and arrive in Atlantic City at 12:04 p.m., but there was a lot of traffic on the Garden State Parkway that delayed its arrival until 1:29 p.m. How long was this trip?**

Draw a clock that represent the time when the bus left Port Authority on the second clock. Draw a clock that represent the time when the bus arrived in Atlantic City. Which time did you enter on the first clock? (1:29)

By starting with the bottom clock estimate the number of full hours between the start time and end time by looking at the clock. (More than 2 but less than 3 hours) Explain why your answer is in between. (If it were 2 hour then the trip would end at 12:44, or if it were 3 hours it would end at 1:44. The trip ended between those times. How much more or less than the estimate is the exact trip? (3/4 hour more or 15 minutes less) How long is the trip? (2 3/4 hours or 2 hours and 45 minutes)

Place the two times in the time slots to the right of the clock. Let's try to subtract the

$$\begin{array}{r}
 1:29 \\
 \underline{10:44} \\
 ?
 \end{array}
 \qquad
 \begin{array}{r}
 13:29 \\
 \underline{10:44} \\
 ?
 \end{array}$$

because we have gone past 12 o'clock. But then we have to again rename the top

$$\begin{array}{r}
 12:89 \\
 \underline{10:44} \\
 2:45
 \end{array}$$

**Calculate the elapse time for the following Bus Trips:**

Bus	Schedule Departure Time	Actual Arrival Time	Schedule Arrival Time	Actual Arrival Time
129	1:25 p.m.	1:26 p.m.	4:40 p.m.	4:41 p.m.
134	3:48 p.m.	3:48 p.m.	7:23 p.m.	7:33 p.m.
144	9:15 a.m.	9:20 a.m.	1:40 p.m.	1:40 p.m.
73	8:50 a.m.	8:55 a.m.	3:20 p.m.	3:25 p.m.

Ask students to describe how the clocks helped you calculate or understand elapsed time or the time the trip took.