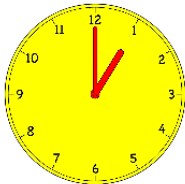**Math Challenge 10**
Solutions
Time

1. How many hours have passed from the time shown in figure 1 to the time shown in figure 2? Assume these clocks are shown on the same day.

   Answer:
   8 [hours]
   _____

2. When Jonah started working on his homework, the wall clock displayed as below:

   When he was done with his homework, the wall clock displayed the time as follows:

   How long, in minutes, did it take Jonah to complete his homework?

   Answer:
   30 [minutes]
   _____

3. Every Tuesday Alex's soccer practice starts at 5:30 p.m. Today he was late by 10 minutes. What time did Alex come to the soccer practice?

   Answer:
   5:40 [p.m.]
   _____

4. My watch is always 5 minutes faster than the actual time. It is now showing 10:09. What time is the correct time?

   Answer:
   10:04 [a.m.]
   _____

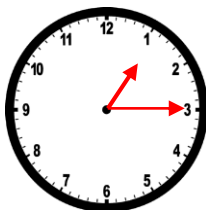5. How many minutes have passed from the time shown in figure 1 to the time shown in figure 2?

   Figure 1   Figure 2

   Answer:
   25 [minutes]
   _____

6. I did all my hon   itting. I c   nath worksheet in 7 minutes, wrote my short story in 18 minutes, and read my book for 20 minutes. How long did I spend completing my homework?

   Answer: 45 [minutes]
   _____

7. A soccer game has two 45-minute sessions and a half-time break between them. If the game started at 9:45 a.m. and ended at 11:30 a.m., how many minutes long was the half-time break?

   Answer: 15 [minutes]
   _____

8. It took me 3 hours and 12 minutes to complete my science project. It took Diana only half the time. How long did it take Diana to complete her science project?

   Answer: 1 hour and 36 minutes
   _____

9. During my birthday party, we will play 3 games. Each game takes 15 minutes. If we start the games at 3:30 p.m. and play without any breaks, what time will we be done with all three games? 3x15=45 minutes. 45 minutes after 3:30 p.m. is 4:15 p.m.

Answer: 4:15 p.m.
_____

10. My mom types very fast. She can type 90 words per minute. How many words can she type in 5 minutes? 90 words x 5 = 450 words

Answer: 450 [words]
_____

11. Rebecca can type pretty fast too. She typed 65 words per minute. Her short essay has 250 words. Approximately how long, in minutes, will it take her to type her essay without stopping? Round your answer to the nearest minute.
250÷65 = 3.8 ≈ 4 minutes

Answer: 4 [minutes]
_____

12. My family is going to California. Our plane is scheduled to depart at 1:20PM. My mom estimated that we need 2 hours for checking in and getting past the security. What time should we arrive at the airport?

Answer: 11:20 a.m.
_____

13. The estimated time to drive from Seattle to Portland is 3.5 hours. We left from Seattle at 9:20AM and plan to stop at the rest area for 10 minutes. What time is our estimated arrival in Portland?
It is 12:50 plus the 10 minutes rest time.

Answer: 1 p.m.
_____

14. How many times does the minute hand pass the number 12 on a clock between 10:15 a.m. and 3:45 p.m.?

Answer: 5 [times]
_____

15. Suppose the time is now 2 o'clock on a twelve-hour clock which runs continuously. What time will it show 1000 hours from now?
The time 2 o'clock is repeated every twelve hours. There are 83 twelves in 1000 plus a reminder of 4. Therefore, the clock will show a time of 6 o'clock 1000 hours from now.

Answer: 6 o'clock
_____

16. A slow clock loses 3 minutes every hour; this means it falls behind 3 minutes every hour. Suppose the slow clock and a correct clock both show the correct time at 9AM. What time will the slow clock show when the correct clock shows 10 o'clock that same night?
There are 13 hours between 9AM and 10PM. Therefore the slow clock will lose 13x3 or 39 minutes and show 9:21PM (39 minutes before 10PM).

Answer: 9:21PM
_____

Math Challenge 11 will be available online March 11, 2016 at www.mathinaction.org.