



Primary PoW Packet

How Far Will Taylor Run?

Problem 4247 • <https://www.nctm.org/pows/>

Welcome!

This packet contains a copy of the problem, the “answer check,” sample solutions and some teaching suggestions. The text of the problem is included below. A print-friendly version is available using the “Print” link from the blue-shaded box on the problem page.

Standards

In *How Far Will Taylor Run?* students are given information about Taylor’s increased running times. They are asked how many minutes Taylor will run without stopping on Saturday and on what day he will run for 30 minutes. If your state has adopted the [Common Core State Standards](#), this alignment might be helpful:

Grade 2: Operations & Algebraic Thinking

Represent and solve problems involving addition and subtraction.

Grade 2: Number & Operations in Base Ten

Count within 1000; skip-count by 5s, 10s, and 100s.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.

The Problem

How Far Will Taylor Run?

Taylor is trying to run a long distance without stopping. Each day he tries to run longer than the day before.

On Monday, he ran for 10 minutes without stopping. On Tuesday he ran for 15 minutes, and 20 minutes on Wednesday.

If this pattern continues, how many minutes will he run without stopping on Saturday?

On what day will he run for 30 minutes?

How did you find the answers?

Extra: What if Taylor ran for 10 minutes without stopping on Monday, then only 8 minutes on Tuesday, 13 minutes on Wednesday, 11 minutes on Thursday, and 16 minutes on Friday? How far would he run on Saturday?



Answer Check

After students submit their solution, they can choose to “check” their work by looking at the answer that we provide. Along with the answer itself (which never explains how to actually **get** the answer) we provide hints and tips for those whose answer doesn’t agree with ours, as well as for those whose answer does. You might use these as prompts in the classroom to help students who are stuck and also to encourage those who are correct to improve their explanation.

On Saturday, Taylor will run for 35 minutes without stopping.

If your answer does **not** match ours, did you

- make a table?
- draw a picture?
- talk in your group?

If your answer **does** match ours, did you

- explain?
- answer the second question?
- help anyone in your group?

Our Solutions

Method 1: Make a Table

Our group made a table using the information in the problem.

Day:	Monday	Tuesday	Wednesday
Time Taylor ran:	10 minutes	15 minutes	20 minutes

We could see that each day Taylor ran 5 more minutes. We added more days to our table:

Day:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Time Taylor ran:	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.

Taylor ran 35 minutes without stopping on Saturday. Taylor ran 30 minutes without stopping on Friday.

Extra: We used our “table” strategy to think about the numbers.

Day:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Time Taylor ran:	10 min.	8 min.	13 min.	11 min.	16 min.	? min.

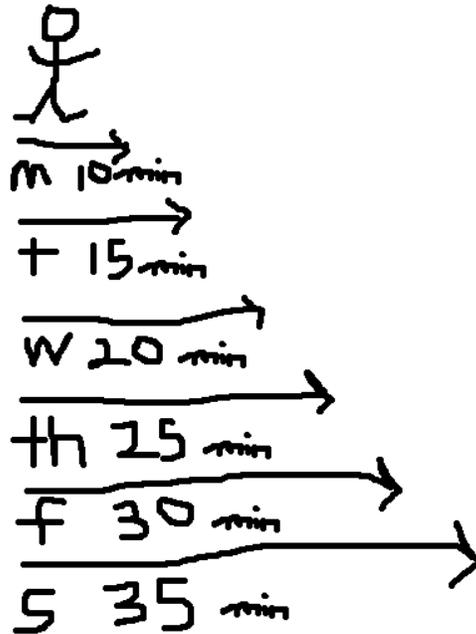
We talked about the pattern that we saw. We wrote these number sentences:

$$\begin{aligned}10 - 8 &= 2 \\8 + 5 &= 13 \\13 - 11 &= 2 \\11 + 5 &= 16 \\16 - ? &= 2\end{aligned}$$

We decided that the ? would be 14 minutes. Taylor ran 14 minutes without stopping on Saturday.

Method 2: Draw a Picture

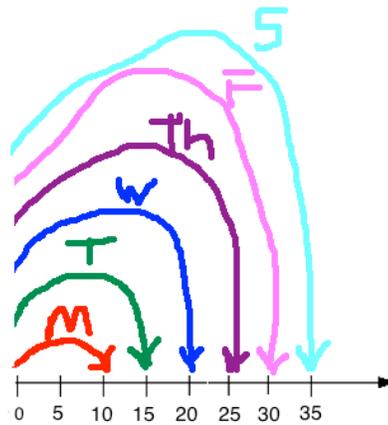
Our group drew a picture to think about what the pattern was.



We saw that the pattern was to add 5 minutes of running to each day. Taylor would run 35 minutes on Saturday without stopping. He ran 30 minutes without stopping on Friday.

Method 3: Use a Numberline

We used a numberline to think about the pattern.



We decided that Taylor ran 35 minutes without stopping on Saturday. He ran 30 minutes without stopping on Friday.

Teaching Suggestions

This problem has not yet been discussed during any of our online courses. If you try it with your students and have a short story to tell about

- how you prepared/planned to present the problem to your students
- what happened when you used it with students
- what classroom environment did you use? individual, pairs, groups, whole class?
- something you noticed about your students' approaches to the problem
- something you wondered about your students' understandings or misunderstandings

We hope this information is useful in helping you make the most of the Primary Problems of the Week in the Library. Please let me know if you have ideas for making them more useful.

<https://www.nctm.org/contact-us/>