

Experimental Archaeology Activity Sheet Answers

1. To answer the question for 10 meters of cordage, follow this general procedure:
 - Convert to centimeters: $(100 \text{ centimeters per meter}) (10 \text{ meters}) = 1,000 \text{ centimeters}$.
 - Set up the ratio: $(10 \text{ minutes}) / (25 \text{ centimeters}) = (x \text{ minutes}) / (1,000 \text{ centimeters})$.
 - Solve for x: $25x = 10,000$; therefore $x = (10,000 / 25)$ or 400 minutes.
 - Convert to hours and minutes: $(400 \text{ minutes}) / (60 \text{ minutes per hour}) = 6.67 \text{ hours}$ or 6 hours and 40 minutes.

Follow the same procedure to compute the time for 100 meters of cordage, or simply multiply the first solution by ten (since 100 meters is ten times more rope than 10 meters). The answer is 66.67 hours, or 66 hours and 40 minutes.

2. Use the same general procedure as in question 1, substituting 7 minutes for 10 minutes in the ratio. Alternatively, one may simply multiply the answers to question 1 by 0.7, as 7 minutes is 70 percent of 10 minutes, and thus the total times for making 10 and 100 meters would be reduced by the same factor. The correct answer for 10 meters of cordage is 4.67 hours or 4 hours and 40 minutes. The correct answer for 100 meters of cordage is 46.67 hours or 46 hours and 40 minutes.
3. The question may be answered by the following procedure:
 - Set up the ratio: $(1 \text{ stalk}) / (2 \text{ meters}) = (x \text{ stalks}) / (50 \text{ meters})$.
 - Solve for x: $2x = 50$; therefore $x = 25 \text{ stalks}$.
4. As in the first problem, one can proceed by converting length to centimeters then using ratios to obtain the answer:
 - Convert to centimeters: $(100 \text{ centimeters per meter}) (2 \text{ meters}) = 200 \text{ centimeters}$.
 - Set up the ratio: $(10 \text{ minutes}) / (25 \text{ centimeters}) = (x \text{ minutes}) / (200 \text{ centimeters})$.
 - Solve for x: $25x = 2,000$; therefore $x = (2,000 / 25)$ or 80 minutes.
 - Convert to hours and minutes: $(80 \text{ minutes}) / (60 \text{ minutes per hour}) = 1.33 \text{ hours}$ or 1 hour and 20 minutes.

5. First compute the area (A) of the net by multiplying the length by the width. (Length and width must be expressed in the same units in order for the calculation to be valid.) Then measure the approximate length of cordage in each square meter of net, and multiply that amount by net's area in square meters. This calculation yields the total length of cordage in the net. From this number one can calculate the total time required to make the cordage, as in problem 1. Assuming that there are 3 meters of cordage in each square meter of net, and that it takes 10 minutes to make 25 centimeters of cordage, the calculation would proceed as follows:

- Convert width to meters: $(120 \text{ centimeters}) / (100 \text{ centimeters per meter}) = 1.2 \text{ meters}$.
- Calculate the net's area: $(42 \text{ meters}) (1.2 \text{ meters}) = 50.4 \text{ square meters}$.
- Calculate the total cordage length: $(50.4 \text{ square meters}) (3 \text{ meters per square meter}) = 151.2 \text{ meters}$.
- Convert to centimeters: $(100 \text{ centimeters per meter}) (151.2 \text{ meters}) = 15,120 \text{ centimeters}$.
- Set up the ratio: $(10 \text{ minutes}) / (25 \text{ centimeters}) = (x \text{ minutes}) / (15,120 \text{ centimeters})$.
- Solve for x: $25x = 151,200$; therefore $x = (151,200 / 25)$ or 6,048 minutes.
- Convert to hours and minutes: $(6,048 \text{ minutes}) / (60 \text{ minutes per hour}) = 100.8 \text{ hours}$ or 100 hours and 48 minutes.

Alternatively, after computing the total length of cordage required in meters, one can set up a simple ratio using the answer to problem 1:

- Set up the ratio: $(66.67 \text{ hours}) / (100 \text{ meters}) = (x \text{ hours}) / (151.2 \text{ meters})$.
- Solve for x: $100x = 10,080$; therefore $x = (10,080 / 100)$ or 100.8 hours.

Note that this answer represents a minimum figure for the total time spent in manufacturing the net, as it reflects only the time spent in making cordage and not the time spent in knotting the finished cordage into a net.