

Dog Mushing Math Problems — Set 3: Distance & Speed

By Carol Lee Gho

Distance = rate x time

Practice/training runs are an everyday occurrence with a dog team. If you are running the major sprint runs (North American and Fur Rondy) the runs are usually the following miles: 20,20,27 or 25,25,25 or some combination similar. The dogs and the drivers need to train so those runs are natural and won't wear them out.

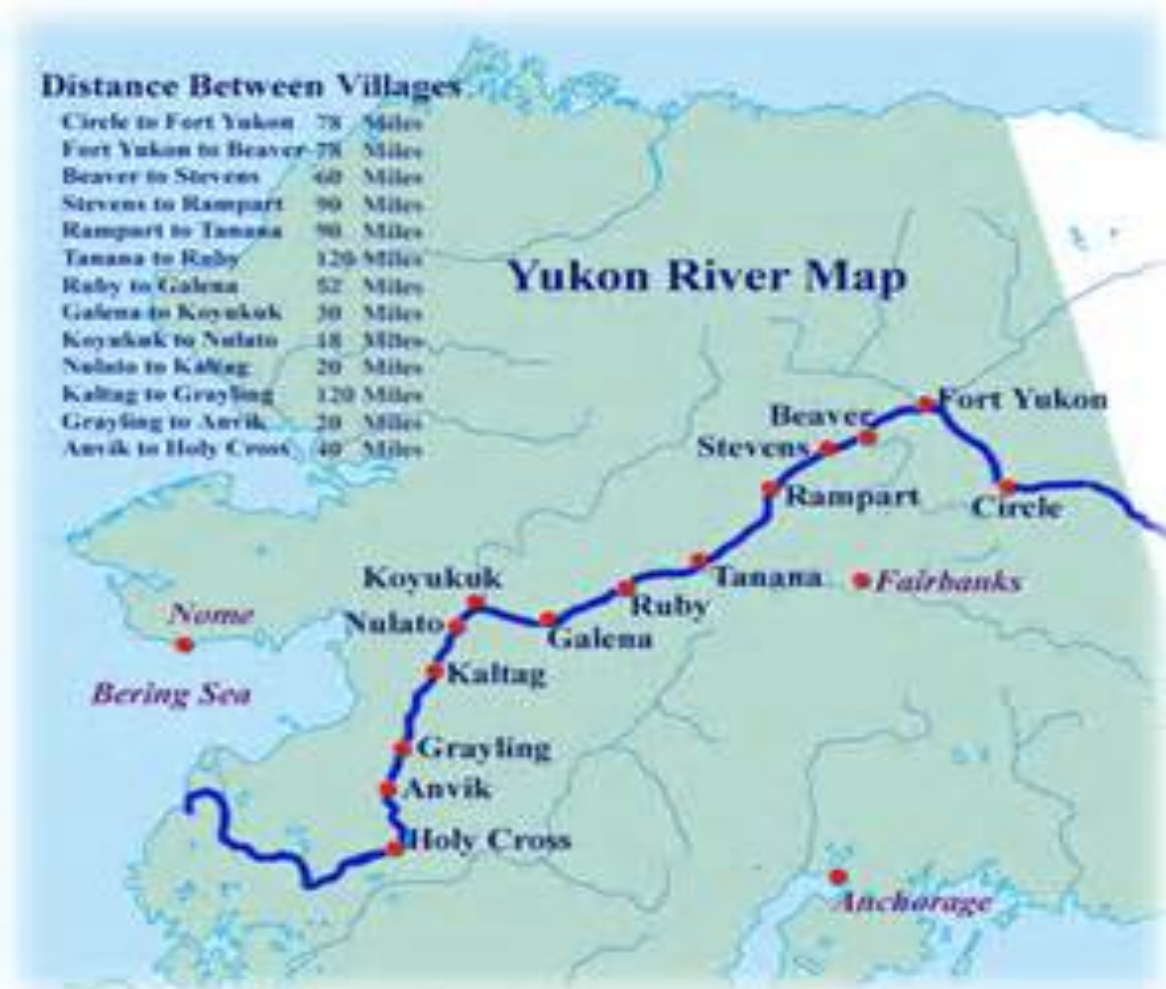
1. How many hours a day will you need to run your dogs if you ran them 20 miles: give your answer in hours and minutes.
 - a. at 10 miles per hour?
 - b. at 12 miles per hour?
 - c. at 15 miles per hour?
 - d. at 18 miles per hour?

2. How many hours a day will you need to run your dogs if you ran them 30 miles? Give your answer in hours and minutes.
 - a. at 10 miles per hour?
 - b. at 12 miles per hour?
 - c. at 15 miles per hour?
 - d. at 18 miles per hour?

3. You have a dog kennel with 10 dogs. You want to make sure our dogs' feet do not get cut so you want to get them some booties. Polar fleece booties cost \$2.50 each and each dog will go through 16 booties in a winter. How much will it cost to provide them with booties for the winter?

4. Your sister likes to sew and has offered to sew booties for your dogs. She can make 40 booties out of a yard of polar fleece, which costs \$10 per yard. She will need 3 inches of Velcro for each bootie and it costs \$2.50 per yard.
 - a. How much will it cost in material to make the booties?
 - b. If you pay your sister \$100 to make the booties how much will they cost?

5. Straw costs \$40 for an 80-pound bale. You will need 10 bales of straw for the winter. Freight is \$.88 per pound.
 - a. How much will the straw cost?
 - b. How much will the freight be?
 - c. What would be the cost plus the freight?
 - d. If you send the straw by barge it costs \$.28 per pound. How much will you save if you sent the straw by barge



6. If you take a dog team from Tanana to Kaltag:
- how many miles would you travel?
 - If you averaged 10 miles an hour and you travelled for 8 hours a day, how long would it take you to make the trip?
 - What supplies would you need to take?
 - Describe how many days you would want to make the trip and where you would stop and camp.
7. You have a dog kennel with 10 dogs. You want to make sure your dogs' feet do not get cut, so you want to get them some booties. Polar fleece booties cost \$2.50 each and each dog will go through 16 booties in a winter. How much will it cost to provide them with booties for the winter?

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Teacher's Guide & Answers By Carol Lee Gho

Alaska State Content Standards: Math

Understand ratio concepts and use ratio reasoning to solve problems.

6.RP.1, 6.RP.2, 6.RP.3, 7.RP.1, 7.RP.2, 7.RP.3

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

6.NS.1, 6.NS.2, 6.NS.3, 7.NS.1, 7.NS.2, 7.NS.3, 8.NS.1

Apply and extend previous understandings of arithmetic to algebraic expressions.

6.EE.2, 6.EE.3, 6.EE.4, 6.EE.5, 7.EE.2, 7.EE.3

Reason quantitatively and use units to solve problems.

N-Q.1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

1. a. 2 hr. ($20/10 = 2$ hr.)
b. 1 hr. 40 min. ($20/12 = 1 \frac{2}{3}$ hr. = 1 hr. + $\frac{2}{3} \times 60 = 40$ min.)
c. 1 hr. 20 min. ($20/15 = 1 \frac{1}{3}$ hr. = 1 hr. + $\frac{1}{3} \times 60 = 20$ min.)
d. 1 hr. 7 min. ($20/18 = 1.11$ hr. = 1 hr. + $.11 \times 60 = 6.6$ min rounded to 7 min)
2. a. 3 hr. ($30/10 = 3$)
b. 2 hr. 30 min. ($30/12 = 2.5$ hr. = 2 hr. 30 min.)
c. 2 hr. ($30/15 = 2$ hr.)
d. 1 hr. 40 min. ($30/18 = 1 \frac{2}{3}$ hr. = 1 hr + $\frac{2}{3} \times 60 = 40$ min.)
3. \$400 \$10 for each dog x 10 dogs x 4 sets per dog = \$400
4. a. \$121.60 4 yards x \$10 = \$40
She can make 12 booties with 1 yard of Velcro $400/12 = 33 \frac{1}{3}$ or about 34 yards x \$2.50 = \$81.60.
b. \$221.60

5. a. \$400
b. \$704 ($10 \times 80 \times .88 = \704)
c. \$1,104
d. \$480 ($800 \times \$.60 = \480) $$.88 - $.28 = $.60$
6. a. 270 miles
b. 3 days and 3 hours
c. dog food, sleeping bag, people food, water, extra socks, tent, etc.