

Representing: Road Race

DRIVING QUESTION: Amy and Rebecca are running a road race. The race consists of four laps of the route. It takes Amy 8 minutes to run a mile and 12 minutes for Rebecca to run a mile. When they run clockwise along the route at a constant speed, how do they stand relative to each other 72 minutes later?

TEKS:

- Investigate proportional relationships and apply them to mathematics and real-world issues
- Geometrical figures should be drawn, constructed, and described, along with how they relate to one another.
- Identify and resolve angle measurement, area, surface area, and volume mathematical and real-world problems.
- Use proportional relationships to analyze and solve mathematical and real-world problems.

OBJECTIVES:

The goal of this lesson unit is to make it easier for you to evaluate how well your students can compare and evaluate various models of real-world scenarios. This lesson specifically tries to find and assist students who have trouble understanding and using proportional connections.

MATERIALS:

- Mini whiteboard, pencil, an eraser.
- A large sheet of paper, two sheets of light, letter-sized cardboard, scissors, a sticky stick, highlighters.
- Plain paper, poster papers, marker
- Calculator, square paper

Gold Rush

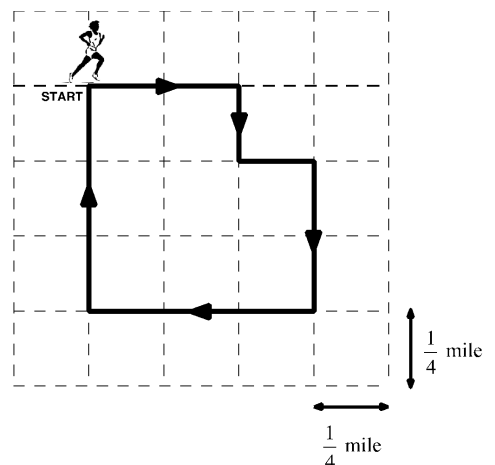
Amy and Rebecca are running in a road race.

The map, drawn to scale, shows the route of the race:

It takes Amy 8 minutes to run a mile.

Rebecca takes 12 minutes to run a mile.

The race consists of four laps of the route and Amy and Rebecca run clockwise along the route at a constant speed.



Sample Responses to Discuss

1. Read each piece of sample student work carefully.
2. Try to understand what they have done. You may want to add annotations to the work to make it easier to follow.
3. Take turns explaining your thinking to your partner.
4. Listen carefully and ask clarifying questions.
5. When your group has reached its conclusions, write your answers to the questions underneath the work.
6. Finally, compare the sample responses.
 - What are the strengths and weaknesses of each?
 - Which do you prefer?
 - Justify your answers.

Sample Responses to Discuss: Sally

Rebecca 12 mins 1 mile
24 mins 2 miles

Amy 8 mins 1 mile
24 mins 3 miles

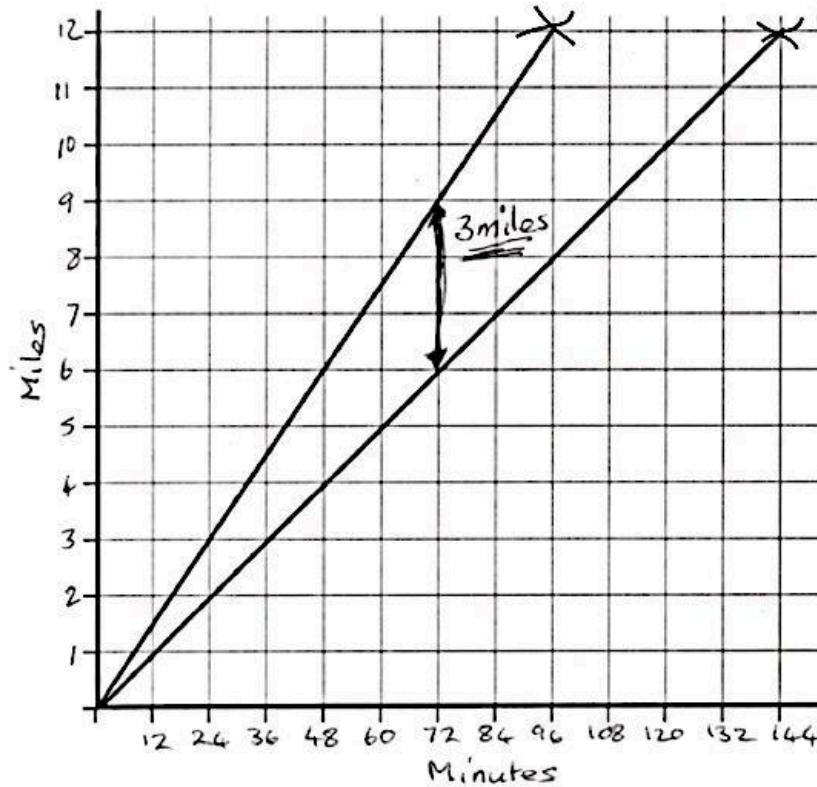
For Amy to lap Rebecca she needs to be 3 miles in front

I will use guess and check

| Time | Rebecca | Amy |
|------|---------|-----|
| 24 | 2 | 3 |
| 48 | 4 | 6 |
| 96 | 8 | 12 |

1 mile in front x
2 miles in front x
4 miles in front x

Sample Responses to Discuss: Diane



Sample Responses to Discuss: George

When Amy laps Rebecca they will be 12 blocks apart

1 block - 2 minutes (Amy)
3 minutes (Rebecca)

6 minutes

Amy : run 3 blocks
Rebecca : run 2 blocks) 1 block apart

A difference of 12 blocks will take 12×6
 $= 72$ minutes