

High School:

Field days are a common tradition in many elementary and middle schools. This is an outdoor event filled with competitive physical activities, often involving students in games like three-legged races, relay races, and tug-of-war. Your high school is organizing the field day for the elementary school. Table 1 shows the number of students who have registered to participate in each activity.

Table 1: Activity Participation

Activity	Number of Participants
Tug-of-war	132
3-Legged Race	176
Ballon Pop Race	198
Mixed-up Relay Race	182
Squirt Gun Race	164
Capture the Flag	250

1. The 3-legged race is scheduled to start at 9:00 am and uses the same area as the mixed-up relay race. Elementary students can complete the race with an average time of 75 seconds. Organizers need 1 minute between races to get the competitors ready. Write an equation to represent the total time (y) needed to complete the 3-legged race event based on (x) number of lanes used for each race.

Equation	
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2. Only 92% of students have registered to participate in field day. All students who have registered have signed up for 2 events. Of the students who have not registered 35% are in the 3rd grade, 15% are in the 4th grade, 23% are in 5th grade, and the rest are in 6th grade. How many 6th graders have registered for field day? Justify your answer.

3. Capture the flag: In this game, four teams, each consisting of 15 students, compete simultaneously on a rectangular field measuring 60 yards in length and 40 yards in width. The field is divided into quadrants, each representing a different team.

Key Information

- Average running speed of a 6-year-old: **7 feet per second**
- Objective: The winning team must capture all the flags of their opponents, which are positioned at each vertex of the field. and place the captured flags with their own.

What is the minimum number of minutes needed to play one game of capture the flag?
Justify your answer.
