

Name \_\_\_\_\_ Date \_\_\_\_\_

**Get to Work, Mix It Up, Go the Distance, and Lower the Cost!**  
**Using Rational Equations to Solve Real-World Problems**

1. Moe and Curly have been hired to paint the interior of a school during summer break. Moe can paint the entire school in 80 hours by himself. Working together, it takes Moe and Curly 50 hours to paint the entire school. Write and solve an equation to determine how long it would take Curly to paint the interior of the school by himself. Show your work.

2. Trey buys a 500 mL bottle of rubbing alcohol. The bottle contains a solution of 70% alcohol and 30% water. The instructions for his toy train set say he should use a solution of 40% alcohol and 60% water to clean the tracks. Write and solve an equation to determine how much water Trey must add to the solution he purchased to have the correct solution for cleaning the tracks. Show your work.

3. Matthew is an aerial photographer. He photographs a 200-mile long oil pipeline that runs straight from east to west. He flies the 200 miles from west to east with an eastward tailwind. He returns over the same route and flies 200 miles against an eastward headwind. The total time of the 400-mile flight is 180 minutes. The plane travels at a speed of 150 miles per hour without a tailwind or headwind. Assume the wind speed is constant during the entire flight. Write and solve an equation to determine the wind speed during Matthew's flight. Show your work.

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4. Ramona is trying to decide between 2 satellite Internet providers. ProSat Internet charges a \$250 installation fee and a monthly fee of \$50. SuperSat Internet charges a \$90 installation fee and a monthly fee of \$58. Write and solve an equation to determine when the average monthly cost (including installation and monthly fees) of each service would be the same. Show your work.