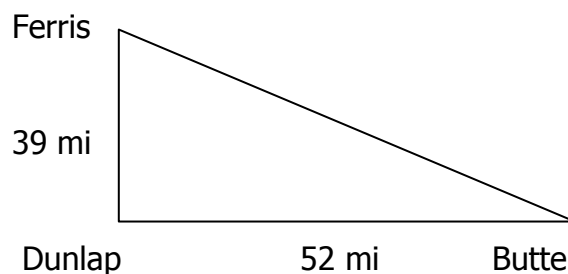


2010 Middle School Math Festival**Team Round: Team 5**

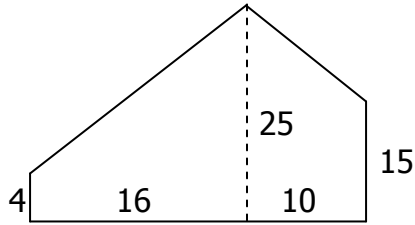
Unless stated in the problem, answers will be written as an integer or an exact decimal (i.e. do not round). Any problems requiring a common fraction or mixed number for the answer will always require the fractional part to be in lowest terms.

1. Let $A = 9! \div 5!$. Let B = the number of perturbations you can create from the following letters {J, K, L, M, N, O, P}. Calculate $A + B$.
2. A store is having a 10% off sale. It gives an additional 20% off to employees. A jacket originally costs \$124.99. Let C = the amount of money saved by an employee who buys the jacket. A car originally selling for \$24,365 is offered on sale for \$16,820. Let D = the per cent discount. Calculate D (as a percent) of C .
3. Solve for E : $\frac{18.45}{E} = \frac{3.6}{7.5}$ During one team's season, the ratio of games won to total games played was 4 to 12. The team played 42 games. Let F = the number of games the team won. Calculate the positive difference between E and F .
4. A driveway is 10 feet long, 15 feet wide, and 7 inches deep. Let G = the number of cubic feet of concrete needed to construct the driveway, rounded to the nearest cubic foot. Let H = the ratio, $\frac{62}{52}$. Calculate $G \div H$. Round your answer to the nearest hundredth.
5. Gerry wants to travel from Ferris to Butte (shown in the diagram below) to visit his cousin. He has two possible routes. He can travel 39 miles due South from Ferris to Dunlap and then 52 miles due East from Dunlap to Butte. Or, he could travel directly from Ferris to Butte. How much shorter is the distance directly from Ferris to Butte?



Team Round (2010): Team 5

6. Calculate the area of the irregular figure shown below. The figure is NOT drawn to scale.



7. Let $J = 2\frac{3}{4} \times \frac{4}{5}$. Let $K = \frac{3}{4} \div 5$. Calculate $J + K$. Write the answer as a common fraction.
8. Let $L = \frac{1}{4} + \frac{2}{7}$. Let $M = 7\frac{3}{4} - 5\frac{3}{8}$. Calculate $L \div M$. Write the answer as a common fraction.
9. Let $P = \frac{23}{25}\%$ of 29,000. Let $Q = 9\%$ of 61. Calculate the positive difference between P and Q . Write the answer as a decimal.
10. Order the following values from least to greatest: $\{0.5, 0.86, \frac{1}{3}, 0.67\}$. Calculate the product of the least value and the largest value. Write the answer as a common fraction.