NAME _____ SCHOOL _____

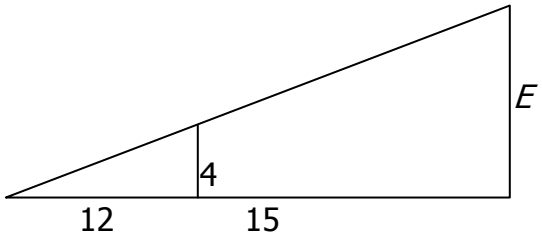
2010 Middle School Math Festival **Team Round: Teams 4, 6, 7, and 9**

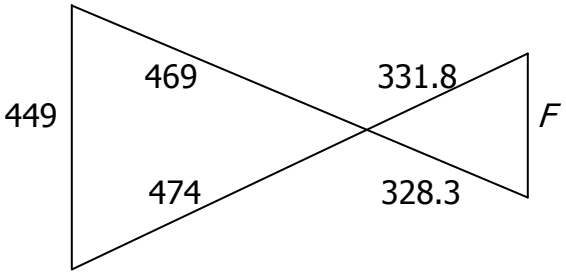
Unless stated in the problem, answers will be written as an integer or an exact decimal (i.e. do not round). Any problems requiring a common fraction or mixed number for the answer will always require the fractional part to be in lowest terms.

1. Let $A = 0.\overline{18}$, written as a common fraction. Let $B = 1\frac{7}{10} + 2\frac{1}{2}$. Calculate AB. Write the answer as a common fraction.

2. Solve -22 = C – 25. Let D = the area, in meters squared, of a rectangle with length of 5.1 meters and width of 3.3 meters. Calculate the positive difference of C and D.

3. Drawings not to scale.
   Find lengths E and F.
   Calculate $E \div F$. Write the answer as a common fraction.





4. For a school banquet, you spend $82 for decorations and dinner costs $13 per person. Let G = the total cost of the banquet for 69 people.
   For the function $f(x) = x^2 - 5x + 1$, let $H = f(-3)$. Calculate $G + H$.

5. For a regular pentagon, divide the measure of one interior angle by the measure of one exterior angle. Write the answer as a common fraction.

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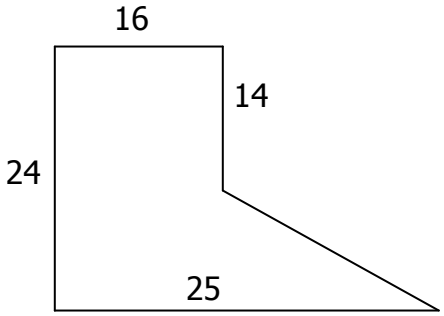
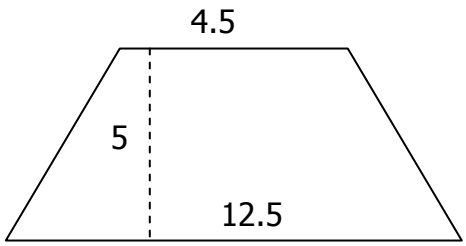
6. Let J = the area of the figure to the right.
Let K = the area of the trapezoid below.
Calculate the positive difference between J and K.





Drawings are NOT to scale.

7. The test scores of students in Room 312 are given below.
{80, 69, 65, 95, 78, 74, 72, 96, 62, 90, 94, 44, 75, 68, 71, 94}
Jay was absent and took a makeup test. Let L = jay's score if the overall class mean was 76.

There was a berry-picking contest at the Earth Day celebration this year. The line plot below shows the number of pints of berries collected by the people who participated in the contest. Let M = the median of the data.

				X		
X	X		X	X		X
X	X	X	X	X	X	X
5	6	7	8	9	10	11

Calculate LM.

8. A basket contains 3 apples, 2 oranges, 2 bananas, 2 pears, and 5 peaches. Jonas reaches into the basket and randomly picks one piece of fruit and does not replace it. Then Beth reaches into the basket and randomly picks one piece of fruit. Let P be the probability, written as a common fraction, that Jonas picked a peach and Beth picked an apple?
A bag contains 7 green marbles, 9 red marbles, 10 orange marbles, 5 brown marbles, and 10 blue marbles. You choose a marble, replace it, and choose again. Let Q be the probability, written as a common fraction, that you pick a red marble, then a blue marble.
Calculate $P + Q$. Write your answer as a decimal, rounded to the nearest hundredth.

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9. For $h = 3$ and $j = 5$, solve for $R = \dfrac{(-h - 3j)^2}{h}$.

   Find the value of T: $6^{2T} = 6^7 \cdot 6^{T+6}$

   Calculate the positive difference between R and T.

10. A cylinder has a diameter of 4 and a height of 5.16. Calculate the product of the volume and total surface area. Use $\pi = 3.14$ and round your answer to the nearest hundredth.