# Workout Qh4#

1. _____ cm The area of a rectangle is 9,600cm$^2$. The perimeter is 392cm. What is the length of the longer side of the rectangle?

2. _____ What is the sum of 1726 base 8 and 234 base 6? Express your answer in base 10.

3. _____ mL Bob has three beakers. Each beaker can hold 50mL of potion. Beaker A has 18mL of poison potion, beaker B has 39mL of antidote liquid, and the beaker C has 32mL of honey. If Bob pours from beaker A into C, then from B to A, then from C to A, and ends up with a 50mL solution of 30% poison, 30% antidote, and 40% honey in beaker A, how many mL of potion did Bob pour from beaker A to beaker C?

4. _____ The set of 11 positive integers { 1, 3, 3, a, 4, 6, 6, b, c, 7, 7 } in increasing order has a unique mode, and the mean of the set is four and eight-elevenths. What is the product of the missing numbers a, b, and c?

5. _____ in$^2$ Find the area of trapezoid ABCD where AB and CD are bases if AB=5in, BC=9in, CD= 13in, and DA=15 in. Express your answer in simplest radical form.

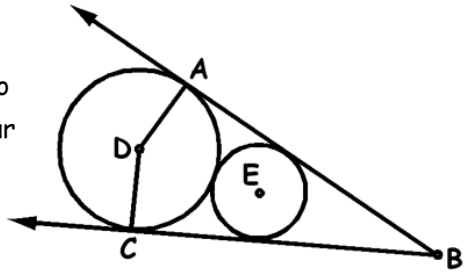
6. _____ There are four unknown single digit positive integers that will be represented by the letters M,O,A, and N. Using the following equation, find M+O+A+N.

$$\begin{array}{r} MOON \\ \times\ MAN \\ \hline MAN75N \end{array}$$

7. _____ cm$^2$ Jerry has six toothpicks, each 5cm long. What is the area of the largest figure these six toothpicks can encompass? Express your answer to the nearest hundredth in centimeters squared.

8. _____ Information in Allan's brain travels along paths in a Cartesian plane. Any input of information into Allan's brain starts from the origin (0, 0) and travels to the point (9, 6), where Allan processes the information. All paths must go positively in the x and y direction. However, Allan has mental blocks, and no information may pass through the points (5, 5) and (4, 3). How many distinct paths can information travel from (0,0) to (9,6)?

9. _____ Circles D and E have radii 5 and 3 respectively. The circles are tangent to lines AB and CB, and tangent to each other. Find the area of kite ABCD. Express your answer in simplest radical form.




10. _____ ( , , ) Solve the following system of equations: $2x + 3y - 5z = 163$

$x + 4y - \frac{1}{2}z = 166$

$5x - y - z = 230$

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