<u>Directions:</u> Place your answer to each question below in the answer column.

1) When a number is divided by 13, the quotient is 8 and   8 r3
   the remainder is 3. The number that belongs in the   13)⟌▢
   box is _____.   1) _____

2) If $\begin{vmatrix} a & c \\ b & d \end{vmatrix} = ad - bc$, find x if $\begin{vmatrix} x & 5 \\ 4 & 3 \end{vmatrix} = 22$.

                                                                        2) _____

3) Jerry helped Mr. Sanchez paint a room and was paid $28 for the 2 hours and
   20 minutes he worked. The next day Jerry spent 3½ hours painting and Mr.
   Sanchez paid him at the same hourly rate. Jerry was paid $_____ for the
   3½ hours.   3) _____

4) The diagram at the right consists of 9 identical squares. The
   area of the shape is 144 sq. units. The perimeter of the shape is
   _____ units.
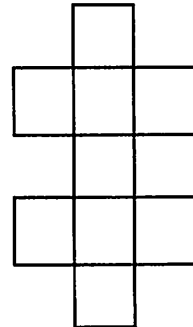
                                                                        4) _____

5) The average of 8 numbers is 45. If 4 additional numbers are added to these 8
   numbers, the average increases to 55. The average of the 4 additional numbers
   that were added to the original 8 numbers is _____.   5) _____

6) One day the farm stand sold ⅚ of their watermelons for $4.50 each. They still
   have 7 watermelons left. They took in $__.__ selling watermelons that day. 6) _____

The answer to each question is in parentheses at the beginning of each solution.

1) (107)   If there were no remainder, the dividend would have been $8 \times 13 = 104$. Since the remainder is 3, the dividend was 107.

2) (14) $3x - 20 = 22$. Since $42 - 20 = 22$, $3x$ must be 42. Since $3 \times 14 = 42$, $x = 14$.

3) (42)   2 hours and 20 minutes is $2\frac{1}{3}$ or $\frac{7}{3}$ hours work for $28. The hourly rate would be $28 \times \frac{3}{7}$ or $12 an hour. Three and a half hours ($3\frac{1}{2}$) at $12 an hour is $42.

4) (80) $144 \div 9 = 16$ sq. units for each square. Each side of each square is 4 units. The perimeter of the figure consists of 20 four-unit segments. $20 \times 4 = 80$ units.

5) (75)   If the average of 8 numbers is 45, the sum of those 8 numbers is $8 \times 45 = 360$. If the average of 12 numbers is 55, the sum of those 12 numbers is $12 \times 55 = 660$. The sum of the 4 additional numbers is $660 - 360 = 300$. The average of those 4 numbers is $300 \div 4 = 75$.

6) ($157.50)   The 7 watermelons represent $\frac{1}{6}$ of the watermelons they had. They started the day with $6 \times 7 = 42$ watermelons. So, ($\frac{5}{6} \times 42$ or $42 - 7$) at $4.50 each. $4.50 \times 35 = 157.50.