1. How much greater, in square inches, is the area of a circle of radius 20 inches than a circle of diameter 20 inches? Express your answer in terms of π.

1. _____

2. Quadrilateral ABCD is a trapezoid with $\overline{AB}$ parallel to $\overline{CD}$. We know AB = 20 and CD = 12. What is the ratio of the area of triangle ACB to the area of the trapezoid ABCD? Express your answer as a common fraction.

2. _____

3. A license plate consists of two letters followed by two digits; for
    example, MP78. Neither the digits nor the letters may be
    repeated, and neither the letter "O" nor the digit "0" may be
    used. When reading from left to right, the letters must be in
    alphabetical order and the digits must be in increasing order.
    How many different license plate combinations are possible?

3. _____

4. The list below shows Mr. Carter's utility bills for September.
    He only has $120 to pay towards these bills, and he distributes
    the money proportionally to the amount of each bill. How many
    dollars does he send to the water company? Express your
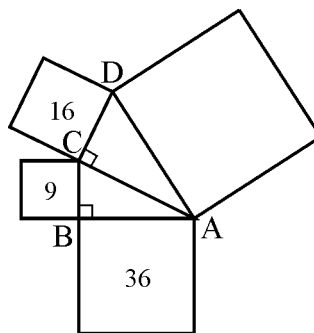   answer as a decimal to the nearest hundredth.

Water	$54.30
Gas	$17.00
Electricity	$123.49

4. _____

5. What is the largest integer n such that
$(1 + 2 + 3 + ... + n)^2 < 1^3 + 2^3 + ... + 7^3$?

5. _____

6. Two right triangles, ABC and ACD, are joined as shown. Squares are drawn on four of the sides. The areas of three of the squares are 9, 16 and 36 square units. What is the number of square units in the area of the fourth square?

6. _____

7. The sum of all the digits used to write the whole numbers 10 through 13 is $1 + 0 + 1 + 1 + 1 + 2 + 1 + 3 = 10$. What is the sum of all the digits used to write the whole numbers 1 through 110, inclusive?

7. _____

8. In a particular sequence, each term after the first two terms is the sum of the two preceding terms. If the first term is 20 and the sixth term is 220, what is the value of the seventh term?

8. _____