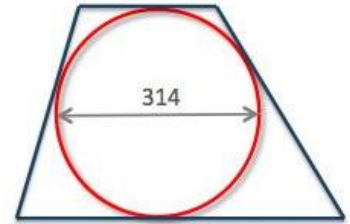


Unit 4 Problem Set

3 marks each + 3 marks for proper mathematical form

/15

1. A circle is inscribed in a trapezoid. Determine the minimum possible perimeter of the trapezoid.



2. A palindrome is a word, phrase or sequence that reads the same forwards or backwards. For example, 123454321 is a 9-digit palindrome. Determine the minimal difference between two 9-digit palindromes.

3. At present, the sum of the ages of a father and his son is 43 years. In n years, $n > 0$, the father will be four times the son's age. Determine the possible ages of the father and son.



4. The diagram represents a large semicircular stained glass window. The diameter of the largest semicircle is 5 m, the diameter of the middle semicircle is 3 m, and the diameter of the smallest semicircle is 1 m. All of the blue areas, marked B, are equal and all of the red areas, marked R, are equal. Determine the ratio of one area marked R to one area marked B.

