6 A boy on a bicycle rode 9 miles into the country. He started back immediately on the same route, walking at a rate of 6 miles an hour less than his rate of riding. On arriving at the starting point he found that he had been gone 4 hours. At what rate did he ride his bicycle?  

7 The base and altitude of a rectangle are in the ratio 3:2. If each dimension is increased by 4 the area of the rectangle is doubled. Find the dimensions of the rectangle.  

8 A man wishes to start a Christmas fund on the following conditions: He is to deposit $18 on January 1 and to make future deposits on the first of each month to December 1 inclusive; each deposit is to be smaller than the one immediately preceding it by a constant amount and the sum of all his deposits (excluding interest) is to be $150. By what constant amount should each succeeding deposit be diminished?  

9 The hypotenuse of a right triangle is 13. If one leg is 5 greater than the other, find the length of each leg of the triangle correct to the nearest tenth. 

10 Solve the following equation:

\[ 2\sqrt{x} - \sqrt{4x - 3} = \frac{1}{\sqrt{4x - 3}} \]  

11 a Construct the graph of \( y = \frac{8}{3}x - 3 \). [Make the scale large enough so that the work required below will appear distinct and not crowded.]  

b With the aid of this graph indicate by using letters the distance on the x-axis which represents the root of \( 1) \frac{8}{3}x - 3 = 0, \ 2) \frac{8}{3}x - 3 = -2 \)  

c From the graph in a determine the values of \( x \) that make \( \frac{8}{3}x - 3 \) positive.  

12 The length of a rectangle is \( x \), its perimeter is 14 and its area is \( y \).  

a Express \( y \) in terms of \( x \).  

b Construct the graph of the relation obtained in a for values of \( x \) from 0 to 7 inclusive.  

c From the graph determine the greatest value that \( y \) can have. What is the corresponding value of \( x \)?