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|  | **Euler’s Method** |
|  | Let the differential equation be    Integrating (1), we get a relation between *y* and *x* which can be written in the form  *Y*=*f*(x)  X  Y  O  Δx=h  x0  Y2  Y1  Y0  θ =?  h  In the *xy*-plane the equation (2) represents a curve. Practically a smooth curve is straight for a short distance from any point on it. Hence, we have the approximate relation  This *y*1 is approximate value of *y* for *x* = *x*1.  Similarly, the values of y corresponding to  In general form, we obtain  Taking *h* small enough and continuing in this way we could get the integral of (1) as a set of corresponding values of *x* and *y*. |
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|  | Given with *y* = 1, for in five steps. Find y approximate for *x* = 0.1 by Euler’s method. (In five steps)  **Solution:** Here we want the value at from in five steps. So, we breakup the interval 0 to 0.1 into five subintervals by introducing the points . Let **h =0.02.** We shall find the values of y at *x* = 0.02, 0.04, 0.06, 0.08 and 0.1 successively.  Thus, we have    Using  Hence when |