

Name: \_\_\_\_\_

## Solving Linear Systems by Substitution

- 1) Determine the two numbers that satisfy each situation.
  - 1) Their sum is 21 and their product is 104
  - 2) Their difference is 8 and their product is 20
  - 3) Their sum is 13 and their product is 22
  - 4) Their sum is 32 and their product is 135
- 2) Ben buys 2 pencils and a pen, costing a total of 50 Dh. Adam buys 3 pencils and 2 pens, costing a total of 85 Dh.  
  
Given that  $x$ =cost of a pencil and  $y$ =cost of a pen, write down a pair of simultaneous equations and solve them for  $x$  and  $y$ .
- 3) Form the pair of linear equations for the following problems and find their solution by substitution method.
  - 1) The difference between two numbers is 26 and one number is three times the other. Find them.
  - 2) The larger of two supplementary angles exceeds the smaller by 18 degrees. Find them.
- 4) For which values of  $a$  and  $b$  does the following pair of linear equations have an infinite number of solutions?  
$$2x + 3y = 7$$
$$(a - b)x + (a + b)y = 3a + b - 2$$
- 5) For which value of  $k$  will the following pair of linear equations have no solution?  
$$3x + y = 1$$
$$(2k - 1)x + (k - 1)y = 2k + 1$$