

## Finding the Equation of a Line Passing through Two Points

Find the equation of the line that passes through the points R(1,4) and S(4,-2).

Procedure:

1. Write  $y = ax + b$
2. Find "a" using  $a = \frac{y_2 - y_1}{x_2 - x_1}$
3. Find "b" using a given point
4. Write the equation of the line.

Solution:  $R(1,4)$   $S(4,-2)$

$$\textcircled{1} \quad y = ax + b$$

$$\textcircled{2} \quad a = \frac{-2 - 4}{4 - 1} = \frac{-6}{3} = -2$$

$$\textcircled{3} \quad y = -2x + b \quad R(1,4)$$

$$4 = -2(1) + b$$

$$4 = -2 + b$$

$$6 = b$$

$$\textcircled{4} \quad y = -2x + 6$$

Find the equations of the following lines

a) A(1,2) B(4,4)

b) C(1,1) D(0,-1)

c) E(1,3) F(3,2)

d) G(2,2) H(4,3)

e) I(-6,-2) J(-8,2)

f) K(-1,5) L(2,-1)

Previous Notes

c)  $a = 5$  C(-1,8)

d)  $a = 1/4$  D(-8, 10)

e)  $a = -1$  E(-1, -4)