

$$-x + 4y = 9$$

$$3x + 2y = 1$$

$$- \blacksquare + 4 \circledast = 9$$

$$3 \blacksquare + 2 \circledast = 1$$

$$\blacksquare = 1, \quad \circledast = 2 \quad -1 + 4(2) = 7 \neq 9$$

FALSE

function "-x+4y=9" ( $\mathbb{R}_x, \mathbb{R}_y$ )

{

if (-x+4y=9)

{

return TRUE;

} else {

return FALSE;

} }

function "0 = 5" (Rx, Ry)

```
{  
  if (0 = 5) {  
    return TRUE;  
  } else {  
    return FALSE;  
  }  
}
```

Find  $(u, v)$  :

$$"-x + 4y = 9" (u, v) \text{ and}$$

$$"-3x + 2y = 1" (u, v) \text{ and}$$

print "Yippee!" ;

(Eureka)

# Solving Linear Systems: Key Step

If  $x$  and  $y$  satisfy

$$-x + 4y = 9$$

$$3x + 2y = 1$$

then  $x$  and  $y$  also satisfy  
and vice versa

$$-x + 4y = 9$$

$$14y = 28$$

then  $x$  and  $y$  also satisfy  
and vice versa

$$-x + 4y = 9$$

$$y = 2$$

then  $x$  and  $y$  also satisfy  
and vice versa

$$-x + 8 = 9$$

$$y = 2$$

then  $x$  and  $y$  also satisfy  
and vice versa

$$x = -1$$

$$y = 2$$

$\Leftrightarrow$   
iff