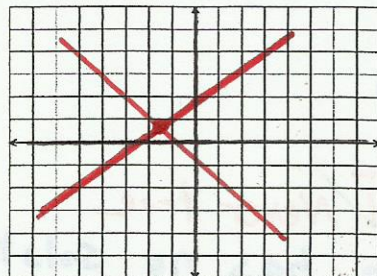


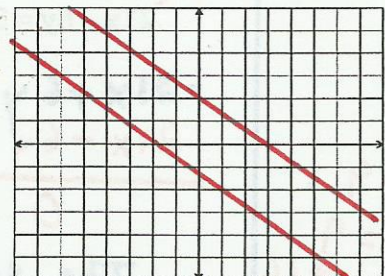
Name **Key**
 Hour
 Date

Unit 1 Systems: Test Study Guide

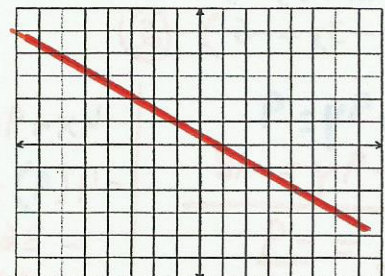
1. Identify the three possible numbers of solutions for a system of linear equations. Sketch an example.



of solutions: **One**
 Describe lines: **Intersecting**
 Describe equations: **different equations ($\neq$ slopes, $\neq$ y-int)**



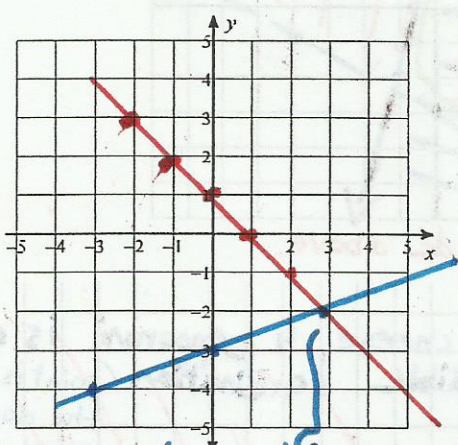
of solutions: **None (0)**
 Describe lines: **Parallel lines**
 Describe equations: **Same slope $\neq$ y-intercepts**



of solutions: **Infinitely many solutions**
 Describe lines: **Same line (overlapping)**
 Describe equations: **same equations (same slope, same y-intercept)**

2. Solve the following systems by graphing. Check your solutions.

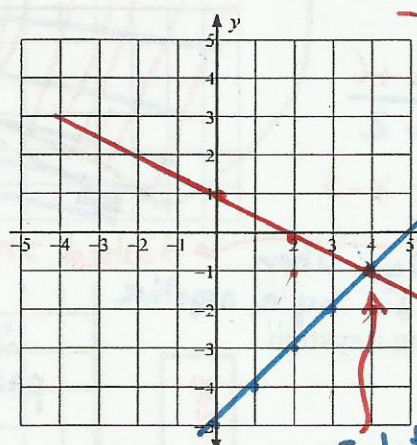
$y = \frac{1}{3}x - 3$ ①
 $y = -x + 1$ ②



Solution (3, -2)

$x - y = 5$
 $x + 2y = 2$

→ $x - y = 5$
 $-x \quad -x$
 $-y = -x + 5$
 $\quad -1 \quad -1$



Solution (4, -1)

$y = x - 5$ ①

$x + 2y = 2$
 $-x \quad -x$
 $2y = -x + 2$
 $\quad 2 \quad 2$
 $y = -\frac{1}{2}x + 1$

3. Solve the following systems by substitution.

a. $-5x + y = -3$ ①
 $3x - 8y = 24$ ②

$-5x + y = -3$
 $+5x \quad +5x$
 $y = 5x - 3$

$3x - 8(5x - 3) = 24$
 $3x - 40x + 24 = 24$
 $-37x = 0$
 $\quad -37 \quad -37$
 $x = 0$

$y = 5(0) - 3 = -3$

Solution (0, -3)

b. $2x + y = 20$ ①
 $6x - 5y = 12$ ②

$2x + y = 20$
 $-2x \quad -2x$
 $y = -2x + 20$

$6x - 5(-2x + 20) = 12$
 $6x + 10x - 100 = 12$
 $16x - 100 = 12$
 $\quad +100 \quad +100$
 $16x = 112$
 $\quad 16 \quad 16$
 $x = 7$

$y = -2(7) + 20$
 $y = 6$

Solution (7, 6)