Algebra 2 – Part 1
Linear Equations

Name: Key
Hour:

**Write an equation in *point slope and slope intercept form* of a line that passes through the given point and has the given slope *m*.**

1. $(-3, -4)$; $m = -\frac{1}{2}$

$y+4 = -\frac{1}{2}(x+3)$

$y+4 = -\frac{1}{2}x - \frac{3}{2}$

$y = -\frac{1}{2}x - \frac{3}{2} - 4$

$\frac{3}{2} - \frac{8}{2}$

Point-Slope Form: $y+4 = -\frac{1}{2}(x+3)$

Slope-Intercept Form: $y = -\frac{1}{2}x - \frac{5}{2}$ or $y = -\frac{1}{2}x - 2.5$

2. $(5, -6)$; $m = -1$

$y+6 = -1(x-5)$

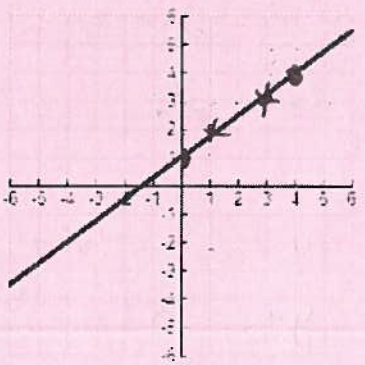
$y+6 = -x+5$

$-6 \quad -6$

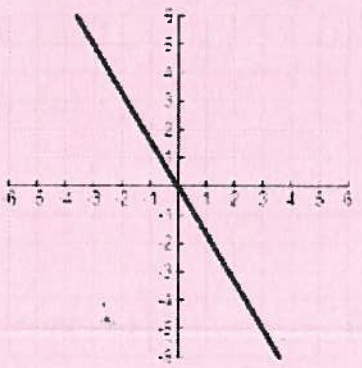
Point-Slope Form: $y+6 = -1(x-5)$

Slope-Intercept Form: $y = -x - 1$

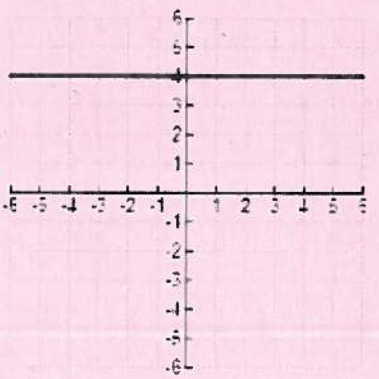
**Write the equation of the line shown in *slope- intercept* form.**



**Slope:** $\frac{3}{4}$ **y – int :** 1



**slope:** $-\frac{3}{2}$ **y- int:** 0



**slope:** 0 **y- int:** 4

3. $y = \frac{3}{4}x + 1$

4. $y = -\frac{3}{2}x$

5. $y = 4$

**Write the equation for STANDARD FORM:** $Ax + By = C$

***A*, *B*, and *C* must be** Integers **and *A* and *B* are not both** 0.

and A can not be negative

**Write an equation of the line in *point-slope*, *slope –intercept* and *standard form* that passes through the given 2 points.**

6. (1, -2) and (-1, 3)

① $\frac{3--2}{-1-1} = \frac{5}{-2}$

② $y+2 = -\frac{5}{2}(x-1)$

$y+2 = -\frac{5}{2}x + \frac{5}{2}$

$y = -\frac{5}{2}x + \frac{1}{2}$

③ $2\left(y = -\frac{5}{2}x + \frac{1}{2}\right)$

$2y = -5x + 1$

$5x + 2y = 1$

① Point-slope form $y+2 = -\frac{5}{2}(x-1)$ OR $y-3 = -\frac{5}{2}(x+1)$

② Slope-intercept form $y = -\frac{5}{2}x + \frac{1}{2}$

③ Standard form $5x + 2y = 1$

7. (-1, 4) and (2, 4)

① $\frac{4-4}{2--1} = \frac{0}{3} = 0$

③ $y = 4$

① Point-slope form $y-4 = 0(x-2)$ OR $y-4 = 0(x+1)$

② Slope-intercept form $y = 4$

③ Standard form $0x + 1y = 4$ OR $y = 4$

$y-4=0$

8. (4, 2) and (6, 6)

① $\frac{6-2}{6-4} = \frac{4}{2} = 2$

② $y-6 = 2(x-6)$

$y-6 = 2x-12$

$y = 2x-6$

③ $y = 2x-6$

$-2x \quad -2x$

$-1(-2x+y = -6)$

$2x-y = 6$

① Point-slope form $y-6 = 2(x-6)$ OR $y-2 = 2(x-4)$

② Slope-intercept form $y = 2x-6$

③ Standard form $2x-y = 6$

9. (2, 3) and (3, -2)

① $\frac{-2-3}{3-2} = \frac{-5}{1} = -5$

② $y-3 = -5(x-2)$

$y-3 = -5x+10$

$y = -5x+13$

③ $y = -5x+13$

$5x+y = 13$

① Point-slope form $y-3 = -5(x-2)$ OR $y+2 = -5(x-3)$

② Slope-intercept form $y = -5x+13$

③ Standard form $5x+y = 13$

10. (5, 9) and (5, -3)

$\frac{-3-9}{5-5} = \frac{-12}{0}$ = undefined

(5, 9)

(5, -3)

$x = 5$

Point-slope form N/A

Slope-intercept form N/A

Standard form $1x+0y = 5$ OR $x = 5$