Transitions to College Mathematics
Review 2.3

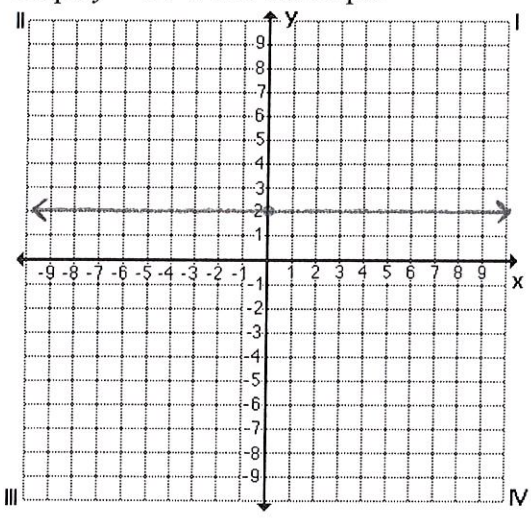
Name Key

SHOW ALL WORK!

Name and write the five forms of a linear equation:

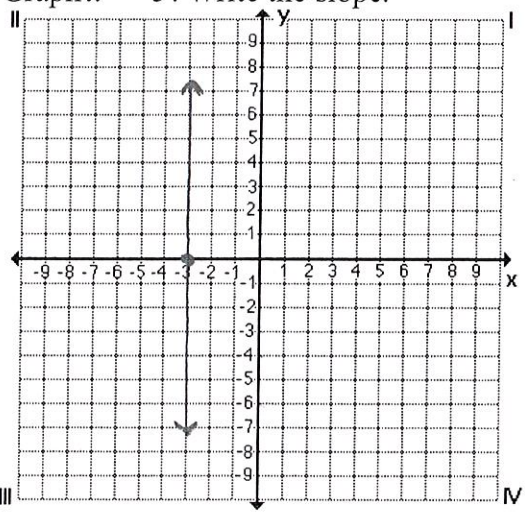
1. Standard Form: $Ax+By=C$
2. Point-Slope Form: $y-y_1=m(x-x_1)$
3. Slope-Intercept Form: $y=mx+b$
4. Horizontal Line: $y=b$
5. Vertical Line: $x=a$

6. Graph $y=2$. Write the slope.



m= 0

7. Graph $x=-3$. Write the slope.



m= $\emptyset$

8. Find the slope of the line containing $(-4,3)$ and $(2,-5)$.

$$m=\frac{-5-3}{2+4}=\frac{-8}{6}=\frac{-4}{3}$$

9. Find the slope of the line $2x-5y=8$.

$$m=\frac{-A}{B}=\frac{-2}{-5}=\frac{2}{5}$$

$-5y=-2x+8$

$y=\frac{2}{5}x+\frac{8}{-5}$

10. Write the equation of the line passing through $(-1,2)$ with slope $\frac{-3}{4}$. Write the equation in standard form.

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

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

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

$3x+4y=-3+8$

$3x+4y=5$

11. Write the equation of the line passing through $(4,0)$ with y-intercept -6. Write the equation in standard form. $(0,-6)$

$m=\frac{0+6}{4-0}=\frac{6}{4}=\frac{3}{2}$

$y=\frac{3}{2}x-6$

$-\frac{3}{2}x+y=-6$

$3x-2y=12$

12. Write the equation of the line that passes through $(-5,-1)$ and $(3,3)$. Write the equation in slope-intercept form.

$m = \frac{3+1}{3+5} = \frac{4}{8} = \frac{1}{2}$

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

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

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

13. Write the equation of the line that passes through $(-7,1)$ and $(3,-4)$. Write the equation in slope-intercept form.

$m = \frac{-4-1}{3+7} = \frac{-5}{10} = \frac{-1}{2}$

$y-1 = -\frac{1}{2}(x+7)$

$y-1 = -\frac{1}{2}x - \frac{7}{2}$

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

14. Parallel lines have equal slopes

15. Perpendicular lines have negative reciprocal slopes.

16. Write the equation of the line that passes through $(3,-1)$ and is parallel to $4x-3y=7$.

$m = \frac{-A}{B} = \frac{-4}{-3} = \frac{4}{3}$

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

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

$-\frac{4}{3}x + y = -5$

$4x - 3y = 15$

17. Write the equation of the line that passes through $(3,-1)$ and is perpendicular to $4x-3y=7$.

$m = \frac{4}{3} \quad m_{\perp} = -\frac{3}{4}$

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

$y+1 = -\frac{3}{4}x + \frac{9}{4}$

$\frac{3}{4}x + y = \frac{9}{4} - 1$

$\frac{3}{4}x + y = \frac{5}{4}$

$3x + 4y = 5$