Algebra – Ch. 6 – TEST REVIEW **Name** Key **hr**___
(Linear Equations and Their Graphs)

1. What is the Slope Formula? Slope-Intercept Form? Standard Form? Point-Slope Form?

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $y = mx + b$ $Ax + By = C$ $y - y_1 = m(x - x_1)$

Find the slope of the line that passes through each pair of points. Use the slope formula or table method.

2. (2, 5), (4, 11)
$x_1\ y_1\ x_2\ y_2$

$\frac{11-5}{4-2} = \frac{6}{2} = \frac{3}{1} = \boxed{3}$

3. (3, -2), (-4, -1)
$x_1\ y_1\ x_2\ y_2$

$\frac{-1--2}{-4-3} = \boxed{\frac{1}{-7}}$

4. (-5, 2), (5, 2)
$x_1\ y_1\ x_2\ y_2$

$\frac{2-2}{5--5} = \frac{0}{10} = \boxed{0}$

Solve.

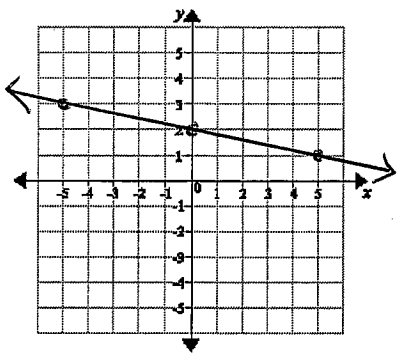
5. Write an equation in slope intercept form that has a slope of 2/5 and a y-intercept of -6.

$y = \frac{2}{5}x - 6$

Write the slope-intercept form of the equation for each line.

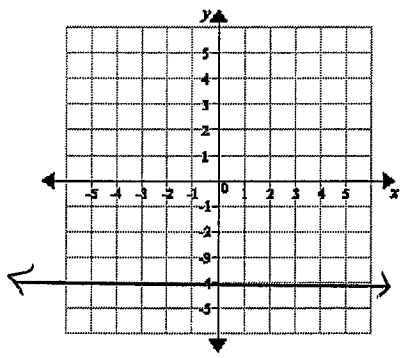
6. eqn: $y = -\frac{1}{5}x + 2$

$m = -\frac{1}{5}$ $b = 2$



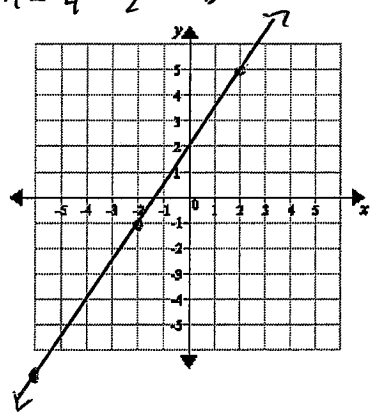
7. eqn: $y = -4$

$m = 0$ $b = -4$



8. eqn: $y = \frac{3}{2}x + 2$

$m = \frac{6}{4} = \frac{3}{2}$ $b = 2$



9. Change $-3x + 2y = 6$ into slope-intercept form.

$-3x + 2y = 6$
$+3x \quad +3x$

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

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

10. Find the x- and y-intercepts of $-2x+3y=18$.

x-intercept $(-9, 0)$

y-intercept $(0, 6)$

x int: $-2x+3(0)=18$ → $-2x+0=18$ → $\frac{-2x}{-2}=\frac{18}{-2}$ → $x=-9$

y int: $-2(0)+3y=18$ → $0+3y=18$ → $\frac{3y}{3}=\frac{18}{3}$ → $y=6$

11. You have two summer jobs. You earn \$12 an hour mowing lawns and \$5 an hour delivering newspapers. You would like to buy an iPad at the end of summer using the money you earn by working both jobs.

a. Define a variable for the number of hours of mowing lawns. Define a different variable for the number of hours of delivering newspapers.

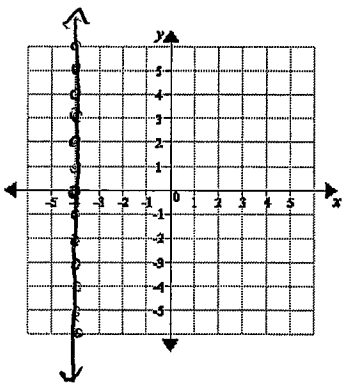
x = # of hrs mowing lawns y = # of hours delivering newspapers

b. Write an equation in standard form if the iPad costs \$599.

$12x+5y=\$599$

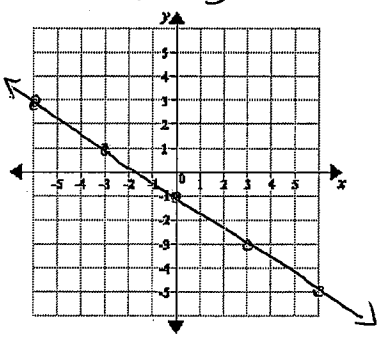
Graph each line using at least 3 to 5 points. You may use any method. Show all of your work.

12. $x=-4$



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

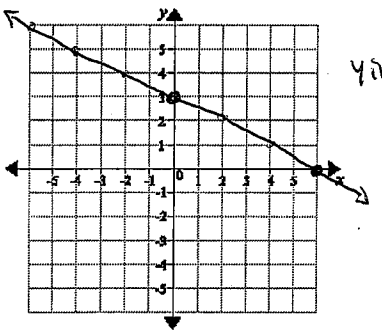
$m=\frac{-2}{3}$ $b=-1$



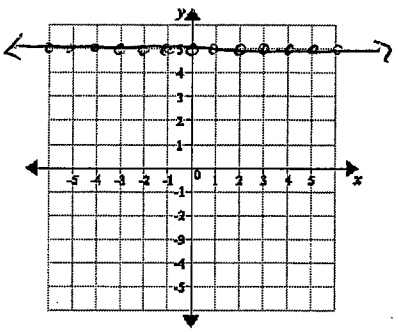
14. $x+2y=6$

x int: $x+2(0)=6$ → $x+0=6$ → $x=6$ → $(6, 0)$

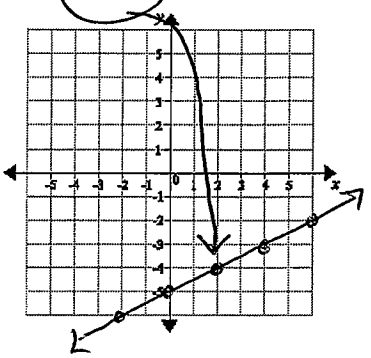
y int: $0+2y=6$ → $\frac{2y}{2}=\frac{6}{2}$ → $y=3$ → $(0, 3)$



15. $y=5$



16. $(2, -4)$, $m=\frac{1}{2}$



17. B The equation $2x - 4y = 32$ is written in

a. slope-intercept form b. standard form c. point-slope form d. parallel form

18. C The equation $y + 6 = 2(x - 4)$ is written in

a. slope-intercept form b. standard form c. point-slope form d. parallel form

Solve.

19. Find the equation of the line in slope-intercept form that passes through the point (4, -3) and has a slope of ½. (*Hint: Use point-slope form to start*)

m x_1 y_1

$y - y_1 = m(x - x_1)$

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

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

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

$-3 \quad\quad -3$

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

20. Find the equation of the line in slope-intercept form that passes through the points (4, 9) and (-2, -6). (*Hint: Find the slope, then use point-slope form to start*)

x_1 y_1 x_2 y_2

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{-6-9}{-2-4} = \frac{-15}{-6} = \frac{5}{2}$

$y - y_1 = m(x - x_1)$

$y - 9 = \frac{5}{2}(x - 4)$

$y - 9 = \frac{5}{2}x - 10$

$+9 \quad\quad +9$

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

Determine whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*. Explain your choice.

21. $y = 4x - 6$, $y = \frac{1}{4}x + 5$

Neither, the slopes are not the same and not opposite reciprocals

22. $y = -\frac{4}{7}x - 3$, $y = -\frac{4}{7}x + 9$

Parallel, the slopes are exactly the same and the y-intercepts are different

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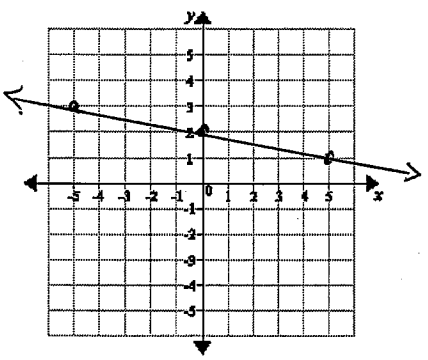

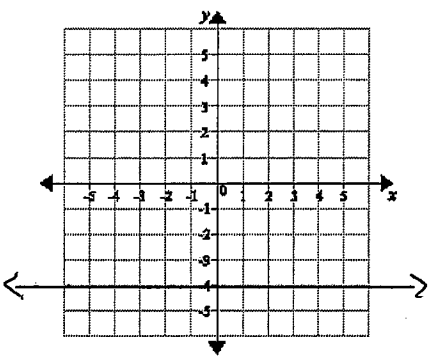

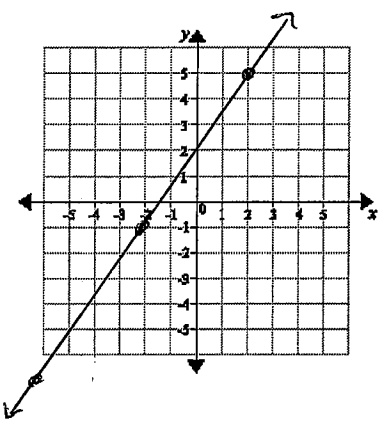

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x-intercept_____

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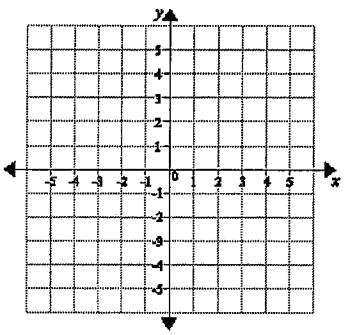

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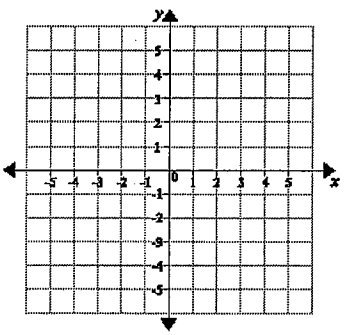

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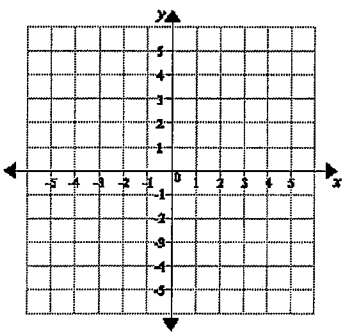

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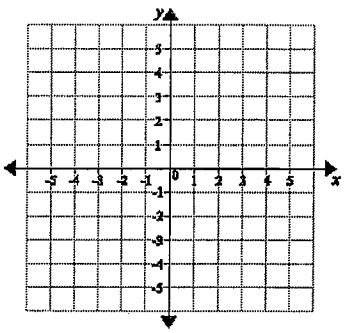

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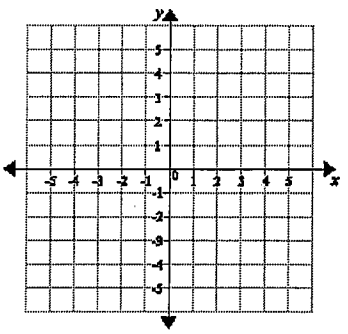

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