Algebra 1 Unit 2 Re-Take Review Sheet Name: Key

Skills from Unit 2:

1) Finding slope when you know:
   - data from a table
   - graph
   - 2 ordered pairs
   - equation in slope-intercept from, point-slope form, or standard form

2) Writing Equations of Lines in Point- Slope, Slope-Intercept, and Standard form when you know:
   - 2 points on the line
   - the graph of the line
   - *x* and *y* intercepts
   - slope and point
   - a point on the line and an equation for a parallel or perpendicular line
   - real-world problems

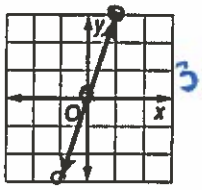
3) Graphing equations in slope-intercept from, point-slope form, or standard form

4) Graphing linear inequalities

5) Solving inequalities & graphing their solution

6) Finding the inverse of a function

1. Which graph has a slope of –3?

a) 

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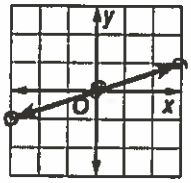
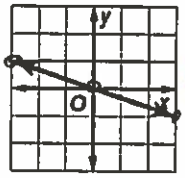
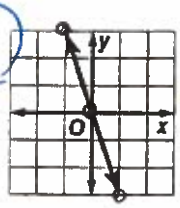
b) 

$\frac{1}{3}$

c) 

$-\frac{1}{3}$

d) 

–3

2. In 1996, there were 171 area codes in the United States. In 2007, there were 215. Find the rate of change from 1996 to 2007.

(1996, 171) (2007, 215) $m = \frac{171 - 215}{1996 - 2007} = \frac{-44}{-11} = 4$

For questions 3-7, find the equation in slope-intercept form that describes each line.

3. a line with slope –2 and *y*-intercept 4

$y = -2x + 4$

4. a line through (–1, 1) and (2, 3)

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

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

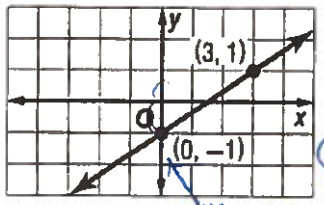
$y - 1 = \frac{2}{3}x + \frac{2}{3}$

$+1 \quad +1$

$y = \frac{2}{3}x + \frac{5}{3}$

Yes, fractions are okay.

5. the line graphed



$m = \frac{\text{rise}}{\text{run}}$, $m = \frac{2}{3}$

b or y-int

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

6. perpendicular to $y = 2x - 3$ and passes through (–1, 2)

7. *x*-intercept – 8 , *y*-intercept 15

(–8, 0) (0, 15) $m = \frac{0-15}{-8-0} = \frac{15}{8}$ b is 15 (y-int) $y = \frac{15}{8}x + 15$

8. What is the standard form of $y - 8 = 2(x + 3)$?

$y - 8 = 2x + 6$

$+8 \quad +8$

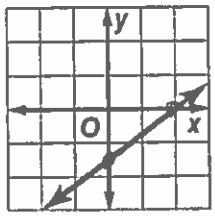
$y = 2x + 14$

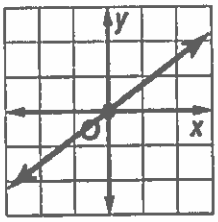
$-2x \quad -2x$

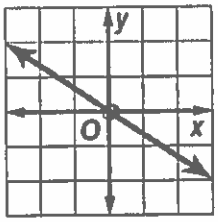
$-2x + y = 14$

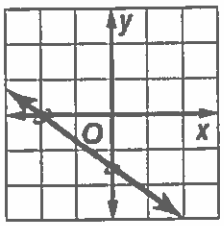
x-int: 2

9. Which is the graph of $3x - 4y = 6$? y-int: $-\frac{3}{2}$ or -1.5

a) 

b) 

c) 

d) 

10. Write an equation in point-slope form for the line that passes through (0, –5) with slope 2.

$y + 5 = 2(x - 0)$ or $y + 5 = 2(x + 0)$ or $y + 5 = 2x$

11. If $f(x) = 6x + 3$, find $f^{-1}(x)$. Then find $f^{-1}(2)$.

$y = 6x + 3$
$x = 6y + 3$
then solve for 'y'
$x = 6y + 3$
$-3 \quad -3$
$\frac{x-3}{6} = \frac{6y}{6}$
$\frac{1}{6}x - \frac{1}{2} = y$
or
$y = \frac{1}{6}x - \frac{1}{2}$

$\frac{1}{6}(2) - \frac{1}{2} = y$
$\frac{1}{3} - \frac{1}{2} = y$
$\frac{2}{6} - \frac{3}{6} = y$
$-\frac{1}{6} = y$

For questions 12 – 15, solve and graph each inequality on a number line.

12. $1 \geq \frac{-y}{4}$ (4)

$\frac{4}{-1} \geq \frac{-y}{-1}$ also written $y \geq -4$
$-4 \leq y$

13. $3(2d - 1) \geq 4(2d - 3) - 3$

$6d - 3 \geq 8d - 12 - 3$
$6d - 3 \geq 8d - 15$
$-6d \quad -6d$
$-3 \geq 2d - 15$
$+15 \quad +15$
$12 \geq 2d$
$6 \geq d$ also written $d \leq 6$

14. $|x - 3| < 2$

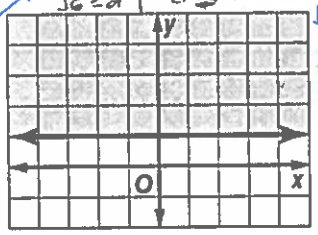
$-2 < x - 3 < 2$
$+3 \quad +3 \quad +3$
$1 < x < 5$

15. $-12 \leq 2x + 1 \leq 24$

$-1 \quad -1 \quad -1$
$-13 \leq 2x \leq 23$
$\frac{-13}{2} \leq \frac{2x}{2} \leq \frac{23}{2}$
$-6.5 \leq x \leq 12.5$

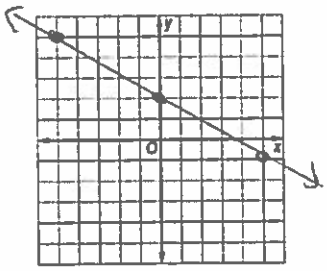
16. Write an inequality for the graph shown.

$y \geq 1$



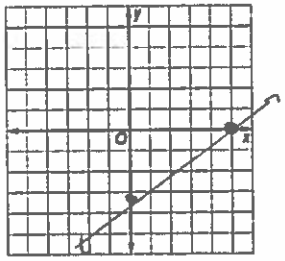
For 17 – 19, graph each equation or inequality.

17. $y = -\frac{3}{5}x + 2$



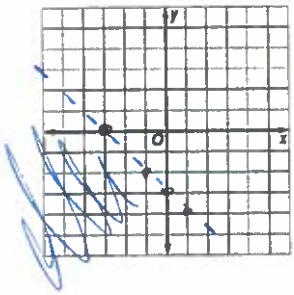
18. $2x - 3y = 10$

x-int: 5
y-int: $-\frac{10}{3}$ or $\approx -3.\overline{3}$



19. $x + y < -3$ or $y < -x - 3$

$-x \quad -x$
x-int: -3
y-int: -3



20. Juan's income y consists of at least $37,500 salary plus 5% commission on all of his sales x. Which inequality represents Juan's income in one year?

included, so $\leq$

a) $y \leq 37{,}500 + 5x$ b) $y \geq 37{,}500 + 0.05x$ c) $y \geq x + 0.05(37{,}500)$ d) $y \geq 37{,}500 + 5$

21. What is the slope of $7x - 2y = 12$?

$-7x \qquad -7x$
$\frac{-2y}{-2} = \frac{-7x + 12}{-2}$ or $\frac{-2y}{-2} = \frac{-7x + 12}{-2}$
$y = \frac{7}{2}x - 6$ $(m = 7/2)$