REVIEW UNIT 4

AGENDA

Warm-Up
HW Check
Review Foldable
Work Time

REMINDERS

- Unit 4 TEST tomorrow!
- Review is worth BONUS points on test - due BEFORE you start the test.
- Extra Credit, Unit 3 Test Corrections, and Blitz due Friday.

WARM-UP TUESDAY

1. Which of the following functions describes the line that passes through the point (-4, 2) and has a slope of -3?

A. f(x) = -3x + 6
B. f(x) = -3x - 10
C. f(x) = -3x + 2
D. f(x) = -3x -14

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

$y - 2 = -3(x + 4)$

$y - 2 = -3x - 12$

$+2 \quad +2$

$y = -3x - 10$

2. Which equation below has a slope of $\frac{-5}{8}$ and passes through the point (2, 40)?

Standard Form → Plug in point.

$5(2) + 8(40) = 330$

A. 5x + 8y = 27
B. 5x + 8y = 42
C. 5x + 8y = 216
D. 5x + 8y = 330

QUESTIONS, COMMENTS, CONCERNS?

Algebra I - Unit 4: Topic 1 – Writing Equations of Parallel and Perpendicular Lines

Practice - Equations of Parallel and Perpendicular Lines pp 353-355

Name _____ Date _____ Period _____

#1-5. Tell whether each pair of lines are parallel, perpendicular, or neither.

1. $y = -7x$
   $y = -\frac{1}{7}x + 5$

2. $y = -2x$
   $y - 3 = -2(x - 4)$

m=-2 m=-2

parallel

3. $x + y = 0$
   $y = x + 10$

y=-x

m=1

y=-1x

m=-1/1

perpendicular

4. $y = 6x + 16$
   $y - 6x = -4$

5. $4x + 5y = -6$
   $-5x + 4y = 2$

6. $y = 2x + 6$
   $y + 1 = -2x$

m=2 m=-2

-1 -1

y=-2x-1

Neither

6. Use the following equation for parts A & B.

$3x - 4y = 8$

A. Write an equation in slope-intercept form for the line that is parallel to the line and passes through the point (0,4).

-3x -3x

$\frac{-4y}{-4} = \frac{-3x+8}{-4}$ $\frac{}{-4}$

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

m=3/4

SAME SLOPE

y-int

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

B. Write an equation in point-slope form for the line that is perpendicular to the line and passes through the point (-6, 5)

7. Use the following equation for parts A & B.

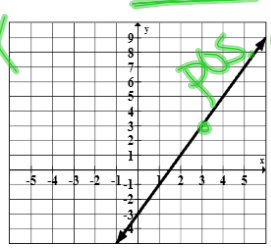
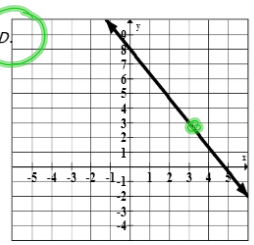
$x = 4$

A. Write an equation for the line parallel to the given line and passes through the point (-3, 2)

B. Write an equation for the line perpendicular to the given line and passes through the point (5, 7)

Algebra I - Unit 4: Topic 1 – Writing Equations of Parallel and Perpendicular Lines

8. Which describes a line passing through (3, 3) that is perpendicular to the line described by $y = \frac{3}{5}x + 2$?

A. $y = \frac{5}{3}x - 2$ B. $y = \frac{3}{5}x + \frac{6}{5}$ C.  D. 

9. Which table shows a linear relationship that is parallel to the equation $y = \frac{1}{2}x + 3$?

A.

X	Y
-4	3
-2	2
0	1
2	0

B.

X	Y
-6	0
-2	2
0	3
4	5

C.

X	Y
-4	-5
2	-2
8	1
10	2

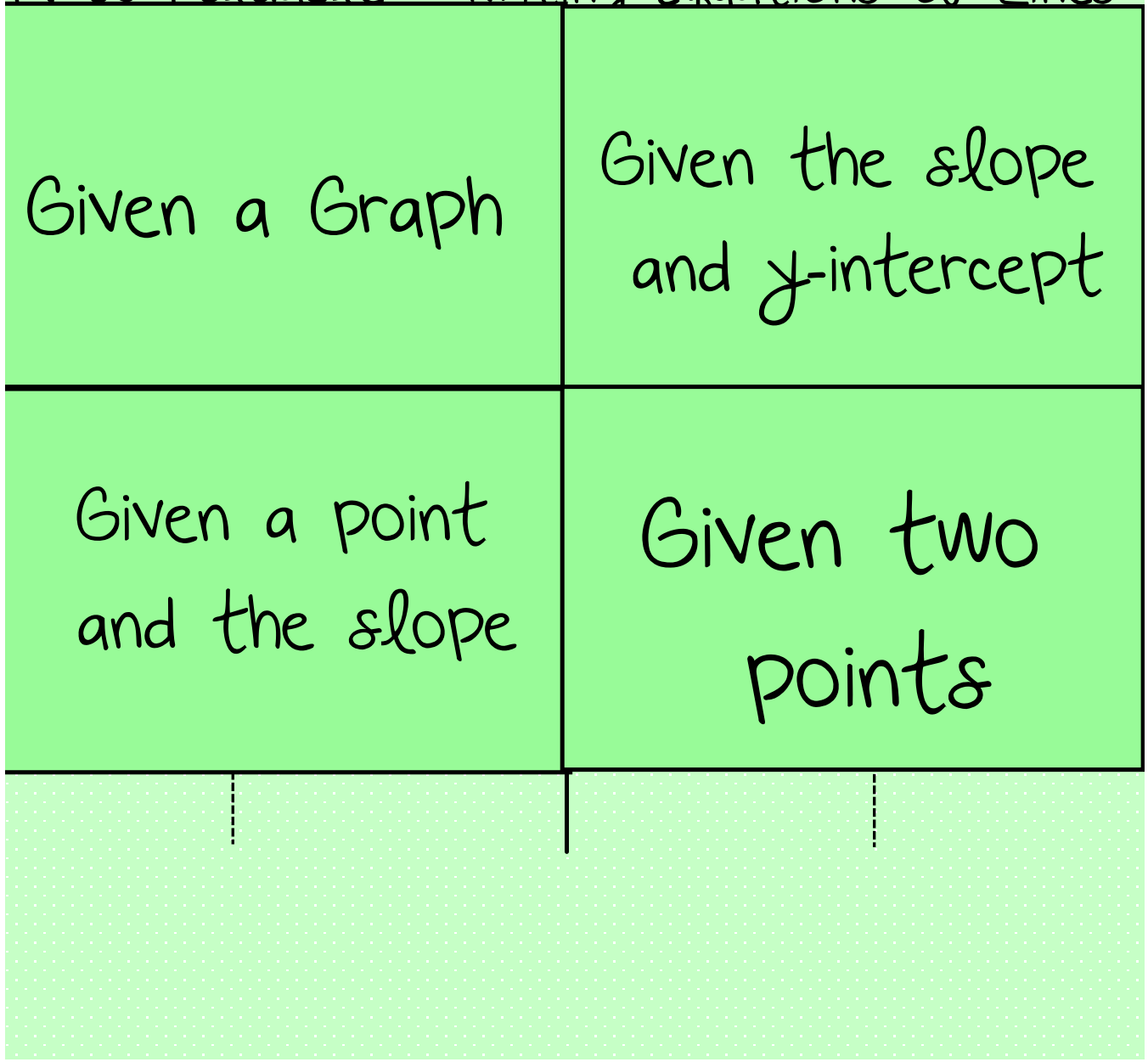
D.

X	Y
-6	-11
-3	-5
0	1
3	7

10. What is the equation of the line that has a slope of 0 and passes through the point (6, -8)?

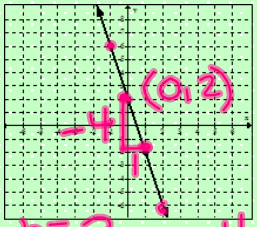
A. x = 6
B. y = 6
C. x = -8
D. y = -8

p. 65 Foldable - Writing Equations of Lines



p. 65 Foldable - Writing Equations of Lines

Example



b=2 $m=\frac{-4}{1}$

$y=-4x+2$

Use Slope-Intercept form $y=mx+b$

1) Find y-intercept
crosses y-axis
2) Find slope = $\frac{RISE}{RUN}$
two pretty points
3) Plug into
$y=mx+b$

1) identify
What's given
slope = m
y-int = b
2) Plug into
$y=mx+b$

Example

Write the equation of the line with a slope of -2 and the y-intercept of (0, -3)

y-int x=0

m=-2
b=-3

$y=-2x-3$

Example

Write the equation of the line passing through the point (6,4) with a slope of $\frac{4}{3}$

$m=\frac{4}{3}$ (6,4)
x_1 y_1
$y-4=\frac{4}{3}(x-6)$
$y-4=\frac{4}{3}x-8$
+4 +4
$y=\frac{4}{3}x-4$

Use point-slope $y-y_1=m(x-x_1)$

1) Label givens
slope = m
point (x_1, y_1)
2) Plug into formula
If the variable has #, put a number there.
minus neg = plus
3) Solve for y
distribute

1) ~~Make table~~
OPTION 1 (by hand)
a. find slope
b. pick point
c. point-slope
OPTION 2 (calc)
STAT 1:Edit
$x_1 \rightarrow L_1$ $y_1 \rightarrow L_2$
STAT ▶ CALC
4: LinReg
a=m
b=yint

Example

Write the equation of the line passing through the points (10, 7) and (15, -3)

x	y
10	7
15	-3

+5 -10

$m=\frac{-10}{5}=-2$

LinReg
y=ax+b
a=-2
b=27

$y=-2x+27$

RESET: 2nd + 7 1 2

REVIEW UNIT 4

MOST IMPORTANT REVIEW QUESTIONS TO FOCUS ON:

#1, 2, 3, 4 , 7, 10, 11, 13, 17, 18, 20

Look at your old homeworks, warm-ups, and notes.

REMINDERS:

- Your review is bonus points on the test (up to 10). It is due at the BEGINNING of class. No late reviews accepted.
- This test will replace your unit 4 quiz grade.
- HW 3.3 & 3.4 are due last call on Monday. The sooner you turn in late work, the better.
- Bathroom passes are due Monday. Turn them in when you are ready - there are no IOU's for bathroom breaks.
- Extra Credit (check the weebly), Unit 3 test corrections, and Blitz are due Friday.

REVIEW UNIT 4

MOST IMPORTANT REVIEW QUESTIONS TO FOCUS ON:

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IMPORTANT FORMULAS:

Slope-Intercept: $y = mx + b$

Point-Slope: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$ (plug in points)

Inequalities: SHADED ABOVE? > or ≥

SHADED BELOW? < or ≤

If you divide by a negative - FLIP the sign

Given two points or a table: Calculator & STAT

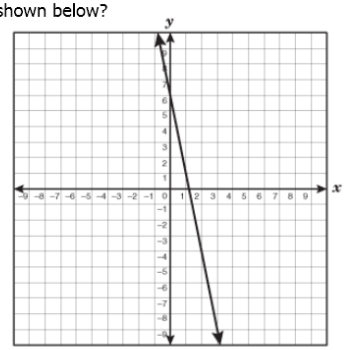
HOY VUX

Parallel - SAME slope; Perpendicular - FLIPPIN' OPPOSITE slope

Review
Unit 4: Linear Functions

Name _____
Date _____ Period _____

1. Which equation best represents the graph shown below?



A $y = 5x + 6$ B $5x - y = 6$
C $y - 6 = -5x$ D $y - 1 = 5(x - 1)$

2. Write a linear function that includes the points (1, 2) and (3, -2) in slope-intercept form.

3. Alex and Millie are selling kites from their store near the beach. Each day more people stop to look at and buy the kites. Alex and Millie kept the following record comparing the number of customers that stopped to look at their kites to the amount of money they collected in sales each day.

Number of Customers	12	18	24	30
Amount of Sales (dollars)	180	210	240	270

A) Write the equation that represents this situation.

B) If this trend continues, how many customers will need to stop and look at Alex and Millie's kites in order for their sales in one day to reach $420?

4. Write the equation of the line that passes through the point (-4, 9) and is parallel to the line $x = 5$.

5. A television station was conducting a poll to determine the most popular newscaster on the evening news. People called in to vote for their favorite newscasters and to explain why they were so popular. The cost of the call was $0.50 for the first minute and $0.25 for each additional minute. Which inequality represents the number of minutes, *m*, it would take for a call to cost at least three dollars?

A $3.00 \geq 0.50 + 0.25(m - 1)$
B $3.00 \geq 0.50 + 0.25m$
C $3.00 \leq 0.50 + 0.25m$
D $3.00 \leq 0.50 + 0.25(m - 1)$

6. Write an equation in slope-intercept form

x	*y*
-14	18
-7	15
7	9

7. Write an equation perpendicular to $x = 5$ through the point (-10, 3).

8. The slope of a line passing through (-3, 4) and (x, -5) is undefined. Find the value of x. HINT: Draw a picture!

9. Which equation represents the linear function represented in the table below.

x	y
0	3
10	5
15	6

10. Write an equation in slope-intercept form for the line that passes through (5, 0) and is perpendicular to the line described by

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

A. $y = \frac{2}{5}x - 2$

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

C. $y = -\frac{5}{2}x + \frac{25}{2}$

D. $y = \frac{5}{2}x - \frac{25}{2}$

11. Write an equation in slope-intercept form for the line that passes through (0, -1) and is parallel to the line described by 4x – 2y = 8.

A. $y = 2x - 4$

B. $y = -2x - 4$

C. $y = 2x - 1$

D. $y = -2x - 1$

12. Write an equation describing the line that is parallel to the x-axis and is 8 units above the x-axis. HINT: Draw a picture.

13. The members of a school choir had a fundraising drive last month. They sold candy bars for $2 each and cans of popcorn for $5 each. Derek sold more than $300 worth of candy and popcorn altogether. Which of the following points could not reasonably represent the number of candy bars, *x*, and cans of popcorn, *y*, sold by Derek last month?

A (30, 90)
B (40, 80)
C (20, 50)
D (50, 60)

14. Dara is going to visit a college campus before deciding where she will attend. She left her house at 12PM. At 1 o'clock, she is 300 miles from her destination. Two hours later, she is 180 miles from the college.

A. What is the equation for this situation?

B. What is the y-intercept of the line and what does it represent in this situation?

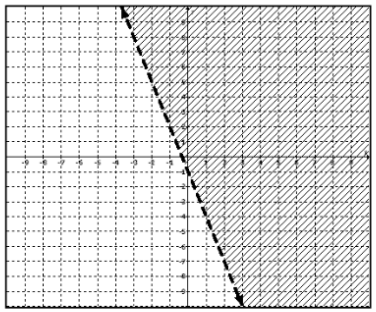
C. What is the slope of the line and what does it represent in this situation?

15. Joe purchased a $25 meal ticket to use to eat lunch in his school cafeteria. Each time he purchases a lunch, *L*, $2.50 is deducted from his meal ticket balance, *b*. Write an equation in slope-intercept form that describes *b* in terms of *L*?

16. The library at the school that Kent attends charges a fine of $0.05 per day for overdue books. Which of these could be used to determine *f*, the fine for an overdue book, per *d*, days that it is overdue?

A $f = 0.05d$ B. $f = 0.05 + d$
C $f = d - 0.05$ D. $f = d + 0.05$

17. Which inequality represents the following graph?



A. $3x+y<-1$

B. $3x+y>-1$

C. $-3x+y\leq -1$

D. $3x+y\geq -1$

18. Given A (5, 2) B (-1, 4) and C (6, -5). Write the equation of the line which passes through C and is parallel to line AB.

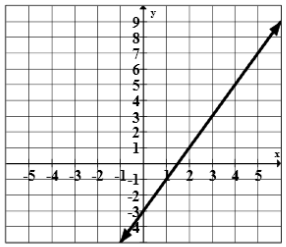
19. The drill team at Ace High School has been invited to march in the New Year's Day parade. They plan to sell candy to raise the money they need in order to march. Each candy bar sells for $1.25, not including tax. Their profit is $0.60 on each candy bar. Write an equation to find the number of candy bars, *c*, the drill team needs to sell to make a profit of $800.

20. Which describes a line passing through (3, 3) that is perpendicular to the line described by $y=\frac{3}{5}x+2$?

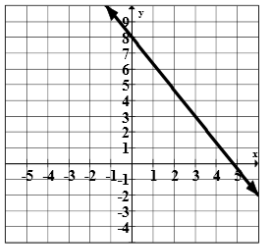
a. $y=\frac{5}{3}x-2$

b. $y=-\frac{3}{5}x+\frac{6}{5}$

c.



d.



21. Sarah wants to buy shirts for her school's graduation party. A company will make the shirts for $10.50 each plus a $50 setup charge. The equation, $C=10.50x+50$ represents C, the total cost for x number of shirts purchased. If Sarah has $1000, which inequality could she use to find the maximum number of shirts she can buy? Solve the inequality.

A $1000\leq 10.50x+50$

B $1000\geq 10.50x+50$

C $100<10.50x+50$

D $1000>10.50x+50$