Parallel & Perpendicular Lines

Agenda
Warm-Up
Reminders
Notes (p.64)
Kahoot Practice
HW #1-10

Reminders
-Test Wednesday
-Review is bonus points on test.
-Unit 3 Test Corrections & Extra Credit due Friday!!

Essential Question
How do I identify two parallel or two perpendicular lines?

Warm-Up Monday

1. Find the slope of the following lines...

A. $y = -\frac{1}{2}x + 4$ Slope-Intercept $y=mx+b$ $m=-\frac{1}{2}$

B. $y+4 = -\frac{1}{2}(x-12)$ Point-Slope $y-y_1=m(x-x_1)$ $m=-\frac{1}{2}$

C. $x+2y=-14$ Standard Form $Ax+By=C$ Solve for y

$-x \quad -x$

$\frac{2y}{2} = \frac{-x-14}{2}$ $m=-\frac{1}{2}$

What do you notice about all 3 lines? Same slope

How are these 3 lines related? they are parallel

End of Semester Reminders

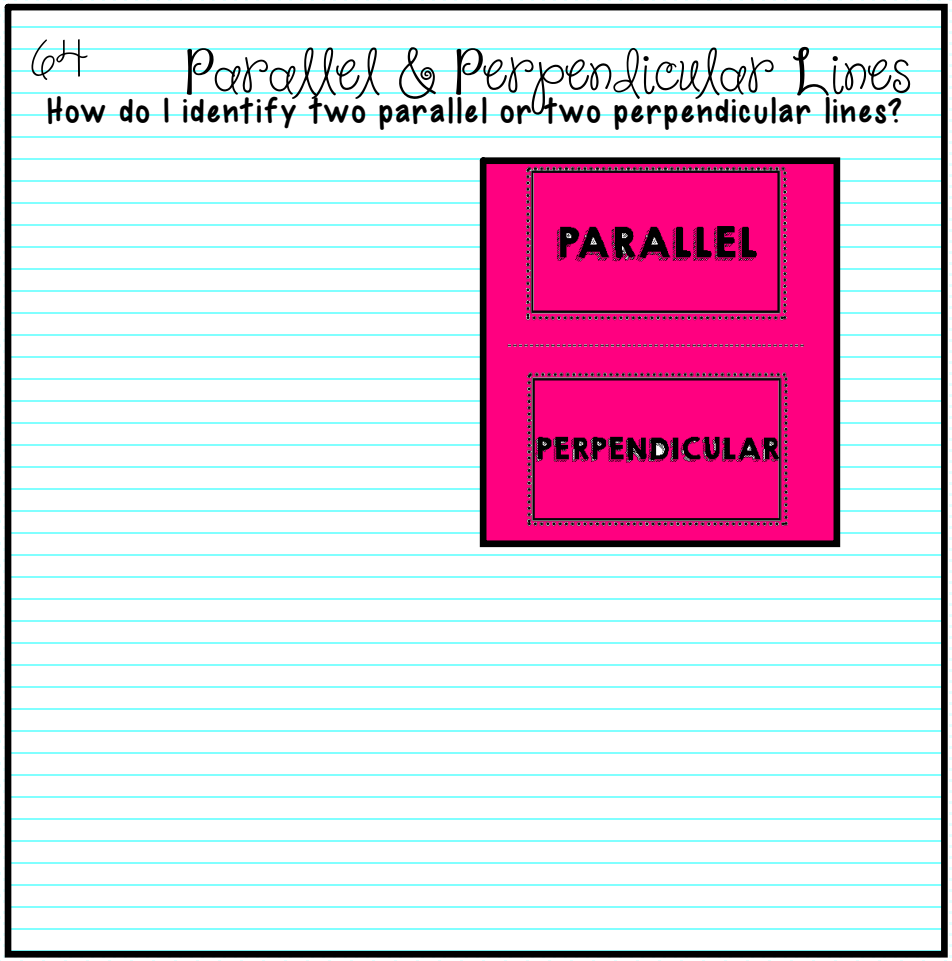
Monday	Tuesday	Wednesday	Thursday	Friday
8	9 Ms. K Tutoring AM	10 -Test Unit 4 -Review is bonus points on test due @ beginning of class Ms. K Tutoring PM	11 Ms. K Tutoring AM	12 -Unit 3 Test Corrections, Math Blitz & Extra Credit due
15 Ms. K Tutoring AM -Bathroom Passes Due -Last Call for HW 3.3 & 3.4 6th Period Exam	16 Ms. K Tutoring AM 1st & 5th Period Exams	17 3rd & 4th Period Exams Early Release	18 2nd & 7th Period Exams Early Release	19 NO SCHOOL

-Exam Reviews will be due on the day of your exam.
-You are expected to be in class the entire duration of the exam period - we are not open campus next week.
- If Ms. K doesn't have tutoring when you are available - go to another teacher.

Parallel & Perpendicular Lines p.64

Essential Question How do I identify two parallel or two perpendicular lines?

Fold the pink paper in half, cut along the the thin dashed line. Glue near the TOP of p.64.



Parallel & Perpendicular Lines p.64

Essential Question How do I identify two parallel or two perpendicular lines?

PARALLEL

PERPENDICULAR

Parallel & Perpendicular Lines p.6 of 7

Essential Question: How do I identify two parallel or two perpendicular lines?

1. Write an equation for a line that is parallel to the line $2x + 3y = 6$ and passes through the point (0, 4).

same m, y-intercept

Find old slope → solve for y

$2x+3y=6$

$-2x \quad -2x$

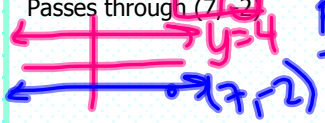
$3y = -2x+6$

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

$m = -\frac{2}{3}$ (same m)

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

2. Write an equation for a line that is parallel to the line $y = -4$. Passes through (7, -2).



parallel to HOY → HOY

HOY VUX

$y = -2$

If two lines have the SAME SLOPE, then they are parallel.

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

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

3. Write an equation for a line that is perpendicular to the line $y = 4x + 8$ that passes through the point (2, -1).

$y=4x+8$

$m = \frac{4}{1}$

$\perp m = -\frac{1}{4}$

point-slope

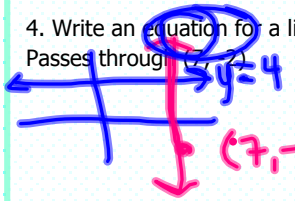
$y - y_1 = m(x - x_1)$

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

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

y=mx+b

4. Write an equation for a line that is perpendicular to the line $y = 4$. Passes through (7, -2).



HOY VUX

perpendicular to HOY → VUX

$x = 7$

If two lines have the FLIPPIN' OPPOSITE SLOPES, then they are perpendicular.

ex $\frac{3}{4} \rightarrow -\frac{4}{3}$

ex $-\frac{2}{1} \rightarrow \frac{1}{2}$

Numbers flipped, signs change

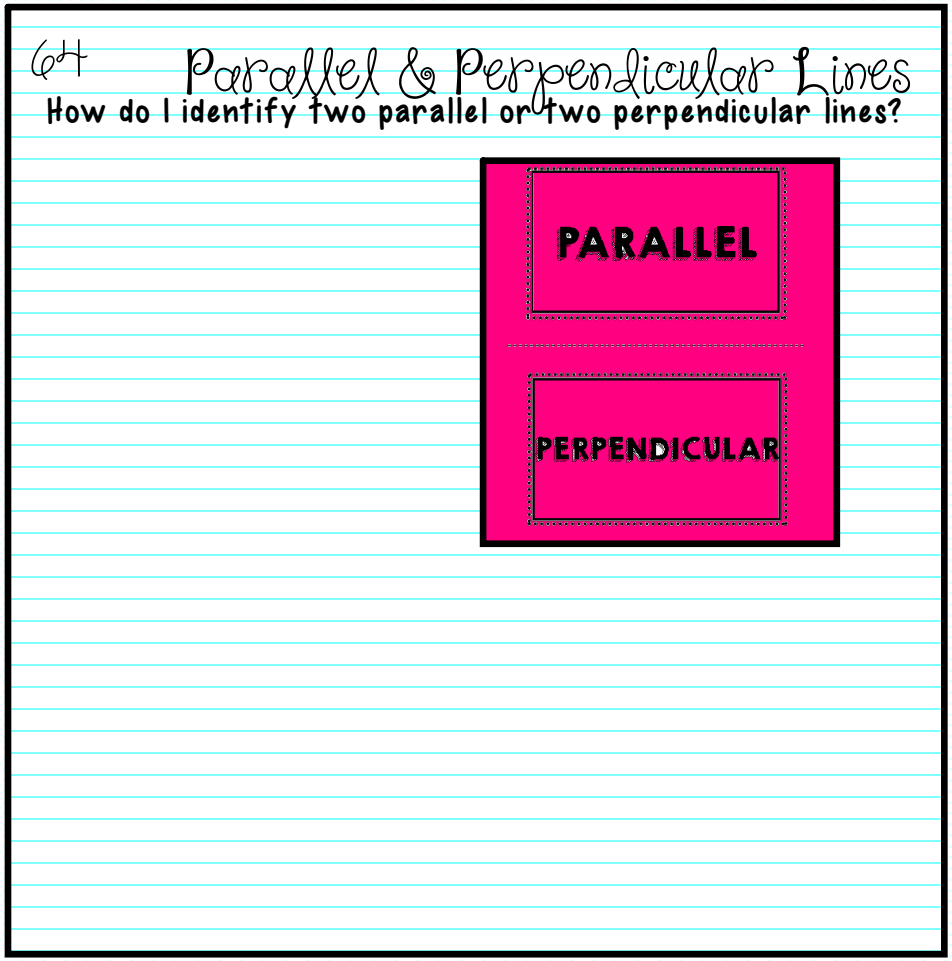
$\perp$

Parallel & Perpendicular Lines p.64

Essential Question How do I identify two parallel or two perpendicular lines?

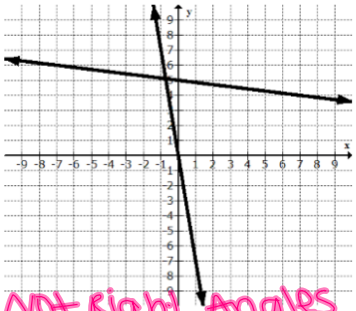
Kahoot Time!

Use the bottom of page 64 to show work or make notes for yourself!



Kahoot Questions!!

1.Are the following lines parallel, perpendicular, or neither?



NOT Right Angles
Neither

Are the following lines parallel, perpendicular, or neither?

2. $y = -2x + 11$
$y = -2x$

same slope
PARALLEL

3. $y + 4 = \frac{3}{2}(x - 2)$
$y - 1 = -\frac{2}{3}(x + 9)$

point-slope
$m_1 = \frac{3}{2}$ $m_2 = -\frac{2}{3}$
perpendicular

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

HW #5

Solve both for y=

perpendicular $m = -\frac{4}{5}$

Write the equation for the line described below

5. Parallel to the line $y = -\frac{2}{3}x + 5$ and passing through the point (-3, 0)

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

$m = -\frac{2}{3}$
same slope
$y - 0 = -\frac{2}{3}(x + 3)$

6. Parallel to the line $2x + 3y = 6$ and passes through the point (0, 4)

A. $y = \frac{3}{2}x + 4$
B. $y = -\frac{3}{2}x + 4$
C. $y = \frac{2}{3}x + 4$
D. $y = -\frac{2}{3}x + 4$

solve for y
Same Slope

7. Perpendicular to the line x=-6 that passes through the point (2, 4)

A. x = 2
B. y = 2
C. x = 4
D. y = 4

HOY VUX
⊥ to VUX → HOY!
y= 4

8. Perpendicular to the line y= -3x that passes through the point (0, -10)

A. $y = \frac{1}{3}x - 10$
B. $y = -3x - 10$
C. $y = -\frac{1}{3}x - 10$
D. $y = 3x - 10$

m= -3
Numbers flipped
$\frac{1}{3}$
Sign changed

9. What is the slope of the line perpendicular to a vertical line?

Undefined
Zero
Positive
Negative

HOY VUX
opposite!

10. Find the slope of 3x + 4y = 8

3/4
4/3
-3/4
-4/3

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

Assignment: #1-10. Take a look at your review tonight!
NO WORK, NO CREDIT, NO KIDDING.

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

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

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

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

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

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).

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.

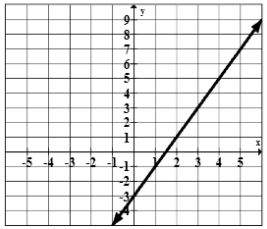
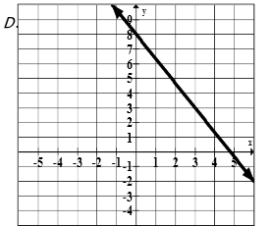
$x = 4$

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

Parallel & Perpendicular Lines

Homework Help

General: Solve the equation for y and the number next to x will be your slope.
Parallel lines have the SAME slope
Perpendicular lines have FLIPPIN' OPPOSITE SLOPES.
NO WORK, NO CREDIT, NO KIDDING!!

1. Neither
2. Parallel
3. Neither
4. Parallel
5. Perpendicular
6. Neither
6. The slope of the line is 3/4
   A. Notice what point they gave you!
   B. What form should you leave the equation in?
7. Use HOY VUX!
8. Check the slope of each answer choice. Remember: we want perpendicular! Make sure your answer goes through (3,3).
9. C. Letter B is actually the line given.
10. HOY VUX! This is a released STAAR question.