

I'm not robot!

a. What is the slope of the line containing \overline{BC} ? Briefly explain how you got your answer.

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

When lines are parallel their slopes are the same, \overline{AD} 's slope was $-\frac{1}{2}x$ and $\overline{BC} \parallel \overline{AD}$ they have the same slope of $-\frac{1}{2}x$

b. Write an equation in slope-intercept form of the line that contains \overline{BC} if B is located at $(-2, 7)$. Show your work to justify your answer.

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

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

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

$$y = -\frac{1}{2}x + 6$$

2. In rectangle $EFGH$, $\overline{EH} \parallel \overline{FG}$ and \overline{EH} crosses the y -axis at $(0, -2)$. If the equation of the line containing \overline{FG} is $x + 3y = 12$, write the equation of the line containing \overline{EH} in slope-intercept form. Show your work to justify your answer.

$$\begin{array}{r} x + 3y = 12 \\ -x = -x \\ \hline 3y = -x + 12 \\ \div 3 \\ \hline y = -\frac{1}{3}x + 4 \\ \downarrow \\ m \end{array}$$

$$\begin{array}{r} (y+2) = -\frac{1}{3}(x) \\ y+2 = -\frac{1}{3}x \\ -2 \\ \hline y = -\frac{1}{3}x - 2 \end{array}$$

Lesson 6.1b - Writing Equations of Parallel and Perpendicular Lines

Introduction

- _____ lines are lines which _____ or _____.
- _____ lines are lines which meet or intersect and create a _____ aka a right angle.
- We can find the equation of two lines which are parallel or perpendicular and prove whether the lines are parallel or perpendicular.

Parallel Lines

- Lines which are parallel always have the _____ or value for m , but a _____ y -intercept or value for b .
- Ex. $f(x) = 2x + 5$ and $f(x) = 2x - 11$ are parallel lines because they have the same slope but different y -intercepts.

Ex. 1

Two lines, l_1 and l_2 , are linear equations. Line l_1 has the equation $y = \frac{3}{4}x + 4$. Line l_2 has the equation $y = \frac{1}{4}x - 2$. Are they parallel? _____

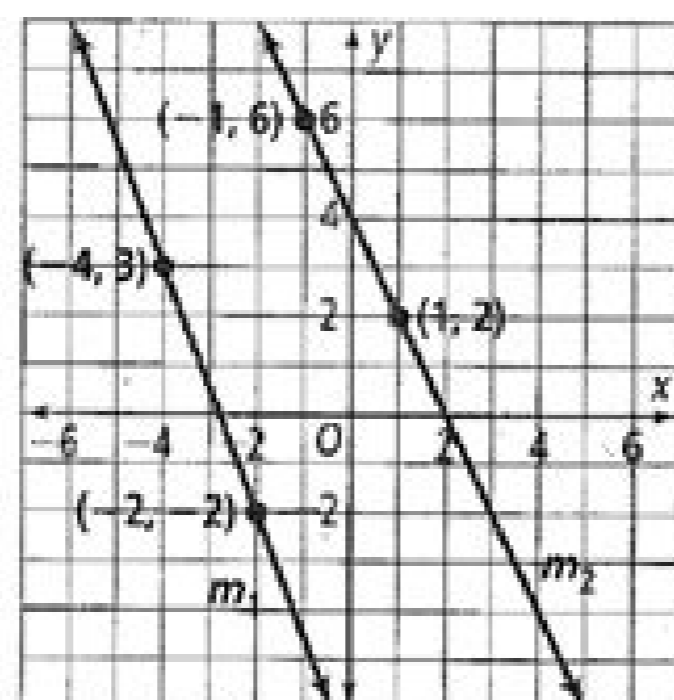
Ex. 2

The two lines in the graph to the right, m_1 and m_2 , are shown. Are they parallel?

m_1 slope: _____

m_2 slope: _____

Are they parallel? _____



ALGEBRA WORD PROBLEMS SHEET 3 (UK version)

Write the algebraic expression for each word problem.

See if you can spot the trick problem that doesn't need algebra!

1) A chicken weighs 1 lb. It needs to be cooked for 20 minutes per lb plus an extra 15 minutes. What is the total cooking time?	*
2) I put £100 in a savings account at 6% yearly interest. How much money will I have in my account at the end of a year?	*
3) I get £m for my birthday. I spend half the money, but get given an extra £50. How much money do I have now?	*
4) A calculator costs £d. A school buys 90 calculators, and gets a £100 discount for bulk purchasing. How much did the school spend?	*
5) A square has sides of 1 cm. What is the area of the square?	*
6) A rectangle measures w inches by h inches. What is the perimeter of the rectangle?	*
7) I have £g. I spend half my money on a console game and £20 on a console controller. How much money do I have left?	*
8) I need to buy p pencils. I buy 4 packs of 7 pencils, but I still need a few more. How many pencils did I buy?	*
9) A car travels 120 miles in h hours. What is the average speed in miles per hour?	*

