R Girls School


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title: "Equations of Straight Line Graphs - Part 1"
author: "write your name here"
date: "`r format(Sys.time(), '%d %B, %Y')`"
output: html_document
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```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
library(tidyverse)
```

KS3: Drawing and finding the equations of straight line graphs (y=mx+c)

Lesson objectives
Plotting straight line graphs y=mx+c

Success criteria
* Plot a straight line graph y = mx+c
* Compare graphs

Keywords
* slope
* gradient = m
* intercept = c
* x-axis
* y-axis

Remember
```

Knit your document often to check the output.

Make sure you do a final knit at the end of the lesson

Worked Example 1

This is a worked example for you to follow.

We will show you how to plot the line graph for y=2x + 5.

Run the code by clicking on the little arrow to the right of the code chunk.

```{r chunk1 }
x <- seq(from=-4, to=4, by=1) # sequence the x-axis from -4 to 4
y <- 2*x+5
mydata <- tibble (x,y)
ggplot(mydata) +
  aes(x,y) +
  geom_line (col='red')+
  geom_vline (xintercept = 0, col='black')+
  geom_hline (yintercept = 0, col='black')

```

Now close the image by clicking on the X to the right of the graph

Activity1:

Write your own code to draw the following graphs.

Use code chunk1 from the example above to help you.

1. y = 2x (in code chunk2)
2. y = 3x + 10 (in code chunk3)
3. y = 5x + 2.5 (in code chunk4)

```{r chunk2}

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```{r chunk3}

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```{r chunk4}

```

Worked Example 2

Drawing more than one line on a graph helps us to compare the lines and see what is the same and what is different.

Here is a worked example for four different lines.

1. y=3x+0
2. y=3x+1
3. y=3x+2
4. y=3x+3

```{r chunk5}
x <- seq(-4, 4) # sequence from -4 to 4
y1 <- 3*x+0
y2 <- 3*x+1
y3 <- 3*x+2
y4 <- 3*x+3
mydata <- tibble (x,y1,y2,y3,y4)
ggplot(mydata) +
  geom_line (aes(x=x, y=y1), col='red')+
  geom_line (aes(x=x, y=y2), col='blue')+
  geom_line (aes(x=x, y=y3), col='green')+
  geom_line (aes(x=x, y=y4), col='grey') +
```

```
  geom_vline (xintercept = 0, col='black')+
  geom_hline (yintercept = 0, col='black')
```

```
Question:  From the graph what looks the same and what looks different about these lines?

Answer:

#### Activity2:

Draw the following lines on a graph

1. y=1x+5
2. y=2x+5
3. y=3x+5
4. y=4x+5

Use code chunk5 from the example above to help you. Remember to update the R code with the new lines.

Run the code.  Knit the document.

```{r chunk6}

```
Question: What is the same and what is different about the lines?

Answer:

KNIT YOUR DOCUMENT for the final time.  This will be the version that your teacher marks.

#### The END
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