The equation of a straight line graph is __________. The gradient is denoted by _______ and the __________ is denoted by c. The __________ is the steepness of a line, whereas the intercept is where the graph cuts across the __________.

Skill 1  Find the gradient of the line connecting the two points.

1) Coordinate A (1,2)  Coordinate B (5,10)
2) Coordinate A (4,3)  Coordinate B (6,9)
3) Coordinate A (4,7)  Coordinate B (16,13)
4) Coordinate A (-2,4)  Coordinate B (4,8)
5) Coordinate A (-2,7)  Coordinate B (0,15)
6) Coordinate A (-4,-4)  Coordinate B (-1,11)

Skill 2  Find the equation of these straight line graphs.

Equation A
Equation B
Equation C
Equation A
Equation B
Equation C
Equation A
Equation B
Equation C

Equation of a straight line

\[y = mx + c\]

M is the gradient
( Remember you need two pairs of coordinates)

Gradient = \[
\frac{\text{Change in } y}{\text{Change in } x} = \frac{y_2-y_1}{x_2-x_1}
\]

C is the y-intercept
This is the value at which the line crosses the Y-axis
Stretch 1
Find the equation of these straight line graphs.

Stretch 2
try to join the 9 points by just three straight lines and find a missing point to make 4-in-a-line on each line what are the equations of the three lines for each question?

(1) 

(2) 

(3) 

Equation A
Equation B
Equation C

Equation A
Equation B
Equation C

Equation A
Equation B
Equation C

Equation A
Equation B
Equation C

Stretch 2 resource from http://donsteward.blogspot.co.uk/2013/11/4-in-line-further-extended.html
The equation of a straight line graph is \[ y = mx + c \]. The gradient is denoted by \( m \) and the \( y \)-intercept is denoted by \( c \). The \( y \)-intercept is the steepness of a line, whereas the intercept is where the graph cuts across the \( x \)-axis.

**Skill 1** Find the gradient of the line connecting the two points.

<table>
<thead>
<tr>
<th>1) Coordinate A - (1,2)</th>
<th>2) Coordinate A - (4,3)</th>
<th>3) Coordinate A - (4,7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinate B – (5,10)</td>
<td>Coordinate B – (6,9)</td>
<td>Coordinate B – (16,13)</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>( \frac{1}{2} )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) Coordinate A - (-2,4)</th>
<th>5) Coordinate A - (-2,7)</th>
<th>6) Coordinate A - (-4,-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinate B – (4,8)</td>
<td>Coordinate B – (0,15)</td>
<td>Coordinate B – (-1,-11)</td>
</tr>
<tr>
<td>( \frac{2}{3} )</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Skill 2** Find the equation of these straight line graphs.

<table>
<thead>
<tr>
<th>Equation A</th>
<th>Y=2x</th>
<th>Equation A</th>
<th>Y=( \frac{1}{2}x )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation B</td>
<td>Y=2x+3</td>
<td>Equation B</td>
<td>Y=( \frac{1}{2}x+3 )</td>
</tr>
<tr>
<td>Equation C</td>
<td>Y=2x-4</td>
<td>Equation C</td>
<td>Y=( \frac{1}{2}x - 4 )</td>
</tr>
</tbody>
</table>

www.missbsresources.com
Stretch 1
Find the equation of these straight line graphs.

| Equation A | Y = \(-\frac{1}{2}x - 1\) |
| Equation B | Y = \(-\frac{1}{3}x + 3\) |
| Equation C | Y = -4x + 2 |

Stretch 2
Try to join the 9 points by just three straight lines and find a missing point to make 4-in-a-line on each line. What are the equations of the three lines for each question?

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation A</td>
<td>Y = -x + 2</td>
<td>Equation A</td>
</tr>
<tr>
<td>Equation B</td>
<td>Y = 2x + 1</td>
<td>Equation B</td>
</tr>
<tr>
<td>Equation C</td>
<td>Y = x - 1</td>
<td>Equation C</td>
</tr>
</tbody>
</table>

www.missbsresources.com