# Foundation Check In - 7.02 Straight line graphs

1. Sketch the graph of  on the grid.
2. The point (*p*, 0) lies on the line with equation . Write down the value of *p*.
3. Which of the following lines are parallel to ?

   

1. A straight line has gradient 2 and passes through the point (0, 5). Write down the equation of the line parallel to this line which passes through the point (-1, -3).
2. What is the *y*-intercept of the straight line that passes through the point (5, 12) and cuts the *x*-axis at 1?
3. Alison says that the line  is parallel to the line . Explain why Alison is wrong.
4. The line with equation  passes through the point (6, 13). Show that the equation of the line is .
5. A straight line passes through the points (1, 8) and (5, 4). Show that the *y*-coordinate of the point on the line when  is 12.
6. The line passing through the points (-1, 4) and (5, *w*) is parallel to .

Find the value of *w*.

1. A regular hexagon is drawn on a coordinate grid so that every vertex is the same distance from the origin. Two vertices are marked at (0, 4) and (0, -4).

Find the equations of the six straight lines that would intersect to make this hexagon.

**Extension**

Match up the following equations with their sketch graphs marking any *x*- and *y*-intercepts on the graphs.

**A:**  **B:**  **C:** 

**D:**  **E:**  **F:** 

|  |  |
| --- | --- |
| **1**.  *y*  *x*  O | **2.**  O  *x*  *y* |
| **3.**  *y*  *x*  O | **4**.  O  *x*  *y* |
| **5**.  *y*  O  *x* | **6.**  O  *y*  *x* |

## Answers

**

1. 
2. Gradient  so the parallel lines are  and .
3. **
4. Gradient  so . Substituting one of the coordinates and solving gives .
5. The line  has gradient 2 whereas the line  has gradient -2. Parallel lines must have the same gradient so Alison is wrong.
6. **

When  and , 



 therefore the equation is 

1. The gradient of the line is  so the equation of the line is .

If the line goes through (1, 8), when **,  so 



The equation is  so when , 

1. **
2. , , , , , 

**Extension**

**A:**  is graph 4 **B:**  is graph 5 **C:**  is graph 2

(0, -3) and  (0, -3) and (6, 0) (0, 5) and 

**D:**  is graph 3 **E:**  is graph 6 **F:**  is graph 1

(0, 5) and  (0, 6) and (2, 0) (0, 5) and (5, 0)

, , , , , 

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Sketch an equation of a straight line |  |  |  |  | AO1 | 1 | Sketch an equation of a straight line |  |  |  |
| AO1 | 2 | Find the intercept of a straight line using |  |  |  |  | AO1 | 2 | Find the intercept of a straight line using |  |  |  |
| AO1 | 3 | Identify equations of parallel lines |  |  |  |  | AO1 | 3 | Identify equations of parallel lines |  |  |  |
| AO1 | 4 | Find the equation of a parallel line given the gradient and a point on the line |  |  |  |  | AO1 | 4 | Find the equation of a parallel line given the gradient and a point on the line |  |  |  |
| AO1 | 5 | Find the *y*-intercept of a straight line that passes through two given points |  |  |  |  | AO1 | 5 | Find the *y*-intercept of a straight line that passes through two given points |  |  |  |
| AO2 | 6 | Apply knowledge of equations of parallel lines |  |  |  |  | AO2 | 6 | Apply knowledge of equations of parallel lines |  |  |  |
| AO2 | 7 | Find the equation of a straight line using  and a point on the line |  |  |  |  | AO2 | 7 | Find the equation of a straight line using  and a point on the line |  |  |  |
| AO2 | 8 | Find a *y*-coordinate of a point on a straight line that passes through two given points |  |  |  |  | AO2 | 8 | Find a *y*-coordinate of a point on a straight line that passes through two given points |  |  |  |
| AO3 | 9 | Solve a problem involving the equation of a straight line that passes through two given points |  |  |  |  | AO3 | 9 | Solve a problem involving the equation of a straight line that passes through two given points |  |  |  |
| AO3 | 10 | Solve a geometric problem by identifying equations of lines |  |  |  |  | AO3 | 10 | Solve a geometric problem by identifying equations of lines |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| AO2 | 6 | Apply knowledge of equations of parallel lines |  |  |  |  | AO2 | 6 | Apply knowledge of equations of parallel lines |  |  |  |
| AO2 | 7 | Find the equation of a straight line using  and a point on the line |  |  |  |  | AO2 | 7 | Find the equation of a straight line using  and a point on the line |  |  |  |
| AO2 | 8 | Find a *y*-coordinate of a point on a straight line that passes through two given points |  |  |  |  | AO2 | 8 | Find a *y*-coordinate of a point on a straight line that passes through two given points |  |  |  |
| AO3 | 9 | Solve a problem involving the equation of a straight line that passes through two given points |  |  |  |  | AO3 | 9 | Solve a problem involving the equation of a straight line that passes through two given points |  |  |  |
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