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Straight Lines - Lesson 3

Collinearity
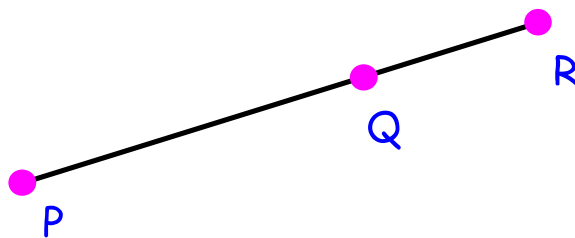
<u>LI</u>

- Determine whether or not 3 points are collinear.

- Find gradients of parallel and perpendicular lines.

<u>SC</u>

- Calculate gradients.

Jan 10-12:11

Points are collinear if they lie on the same straight line

To show that 3 points are collinear :

- Show that 2 gradients are equal.
- Identify a common point.

To show that 3 points are not collinear :

- Show that 2 gradients with a common point are not equal.

Jun 3-17:16

<u>Example 1</u>

Show that the points $F(2, 7), G(3, 5)$ and $H(6, -1)$ are collinear.

$$m_{FG} = \frac{5 - 7}{3 - 2} = \frac{-2}{1} \Rightarrow \underline{m_{FG} = -2}$$

$$m_{GH} = \frac{-1 - 5}{6 - 3} = \frac{-6}{3} \Rightarrow \underline{m_{GH} = -2}$$

Since $m_{FG} = m_{GH}$ and G is a common point, F, G and H are collinear.

Mar 3-16:58

<u>Example 2</u>

Show that the points P (3, 6), Q (7, 12) and
R (11, 17) are not collinear.

$$m_{PQ} = \frac{12 - 6}{7 - 3} = \frac{6}{4} \Rightarrow m_{PQ} = \frac{3}{2}$$

$$m_{QR} = \frac{17 - 12}{11 - 7} = \frac{5}{4} \Rightarrow m_{QR} = \frac{5}{4}$$

Since $m_{PQ} \neq m_{QR}$ and Q is a common point,
P, Q and R are not collinear.

CfE Higher Maths

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