**Vectors GREEN**

You have been given a robot that has three buttons: a and b, plus a fraction button.

Button a move the robot horizontally the length of one side (eg. O to E), as shown below.

Button b moves the robot diagonally the length of one side (eg. O to A), as shown below.

The challenge is to move the robot to various points on the parallelogram using the a, the b and the fraction buttons.

Point B is halfway between A and C.

Point D is halfway between C and E.

Point F is three quarters of the way from O to E.



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The challenge asks you to move between the various points listed below, and you have one opportunity to enter the instructions to the robot using the a and b buttons once only. Are you up to it?

O to C: ………………………………………………………………………………………………

O to D: ………………………………………………………………………………………………

O to B: ………………………………………………………………………………………………

E to B: ………………………………………………………………………………………………

A to D: ………………………………………………………………………………………………

A to F: ………………………………………………………………………………………………

**Vectors AMBER**

You have been given a robot that has two buttons: a and b.

Button a move the robot horizontally the length of one side, as shown below.

Button b moves the robot diagonally the length of one side, as shown below.

The challenge is to move the robot to various points on the hexagon using the a and b buttons.



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The challenge asks you to move between the various points listed below, and you have **one** opportunity to enter the instructions to the robot using the a and b buttons **once** only. Are you up to it?

O to U: ………………………………………………………………………………………………

O to Q: ………………………………………………………………………………………………

O to R: ………………………………………………………………………………………………

P to T: ………………………………………………………………………………………………

S to T: ………………………………………………………………………………………………

R to Q: ………………………………………………………………………………………………

**Vectors RED**

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a = b =

eg. 2a + b

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2a + b =

Draw the following vectors in your books, writing down what the resultant vector is:

1. a + b
2. b – a
3. 3a + 2b
4. 4a – 5b