Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block:\_\_\_\_\_\_

**IB MATH SL: IB-Style Practice Questions**

**Vectors**

**Paper 1 –** [Maximum mark: 5]

1. In the following diagram, **, = p, , = q** and **, =** .

P

T

O Q

Express each of the following vectors in terms of **p** and **q**,

1. (2)
2. (3)

**Paper 2 –** [Maximum mark: 6]

1. The following diagram shows two perpendicular vectors ***u*** and ***v***.

***u***

***v***

1. Let ***w*** = ***u*** – ***v.*** Represent ***w*** on the diagram above. (2)
2. Given that ***u =*** and ***v =*** ,where *n* , find *n*. (4)

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block:\_\_\_\_\_\_

**IB MATH SL: IB-Style Practice Questions**

**Vectors**

**Paper 1 –** [Maximum mark: 17]

3. The line L1 passes through the points A(2, 1, 4) and B (1, 1, 5).

(a) Show that =  **.** [1]

(b) Hence, write down

(i) a direction vector for L1;

(ii) a vector equation for L1 .. [3]

Another line L2 has the equation ***r = + s*** . The lines L1 and L2 intersect at point P.

(c) Find the coordinates of P. [6]

(d) (i) Write down a direction vector for L2.

(ii) Hence, find the angle between L1 and L2. [7]

**Paper 2 –** [Maximum mark: 17]

4. Consider the lines L1 and L2 with the equations L1: ***r = + s***  and L2 : ***r = +t***

The lines intersect at point P.

(a) Find the coordinates of point P. [6]

(b) Show that the lines are perpendicular. [5]

(c) The point Q (7, 5, 3) lies on L1. The point R is the reflection of Q in the line L2.

Find the coordinates of R. [6]