

## REGULAR QUIZ 08

Form 1

Transformation on Coordinate Plane

### Part A – MC (@2marks)

1.	A	$a+7-5=-1$ $a=-3$ $b-1-6=9$ $b=16$
2.	B	$A(2,-3) \rightarrow (-2,-3) \rightarrow B(-2,3)$ Choice A: $B(-2,3) \rightarrow (2,3) \rightarrow (2,9)$ Choice B: $B(-2,3) \rightarrow (-2,-3) \rightarrow A(2,-3)$ Choice C: $B(-2,3) \rightarrow (-2,-3) \rightarrow (-2,3)$ Choice D: $B(-2,3) \rightarrow (2,3) \rightarrow (3,-2)$ Thus, the answer is B.
3.	C	Let $A'(a,9)$ $a-5=5-(-4)$ $a=14$
4.	C	After rotation, $P'(2a,a+1)$ After translation, $Q(2a,a-4)$ $\therefore a-4=0$ , thus $a=4$
5.	C	Since the $y$ -coordinates of $A$ and $B$ are the same. Thus, $L$ is a vertical line. $x = \frac{6-2}{2} = 2$ $L$ passes through $(2,1)$
6.	A	$2\theta + 30^\circ = 90^\circ$ $\theta = 30$
7.	A	Note that $P$ and $Q$ lies in quadrant II and IV respectively. i.e. $a < 0$ and $b > 0$ $-2a = 4$ and $2b = 8$ $a = -2$ and $b = 4$ $a+b = -2+4 = 2$

1. A      2. B      3. C      4. C      5. C  
 6. A      7. A

**Part B – Short Questions (23 marks)**

1. (a)  $(-2, -7)$  1A  
 (b)  $(-6, -10)$  1A  
 (c)  $(2, -1)$  1A  
 (d)  $\left(-\frac{1}{2}, 3\right)$  1A  
 (e)  $(-2, -a)$  1A  
 (f)  $(k-2, 0)$  1A  
 (g)  $(-8b, -a)$  1A  
 (h)  $(-10, -4)$  1A  
 (i)  $\left(-\frac{7}{2}, -\frac{11}{2}\right)$  1A  
 (9)
2. (a) Note that  $BC$  is horizontal.  
 $BC = (k+1) - (k-5) = 6$  1A  
 Area of  $\triangle ABC$   
 $= \frac{1}{2}(6)(10-2)$   
 $= 24$  sq. units 1A
- (b)(i) After rotation, the new coordinates of  $A(-10, 8)$  1A  
 Since the height of  $\triangle ABC$  is decreased by 2  
 while the area remains unchanged,  
 $\frac{1}{2}(BC)(8-2) = 24$   
 $BC = 8$   
 Thus,  $B$  is translated to the left by 2 units.  
 i.e.  $n = 2$  1A
- (ii)  $B(k-7, 2)$  1A  
 (5)

3. (a)  $(10, -6)$  1A

(b)  $(10, 2)$  1A

(c)  $\text{area} = \frac{1}{2}(14)(8)$  2M

$= 56$  1A

(5)

4. (a)  $C(-k, -k - 2)$  1A

(b)(i) Note that  $ABCD$  is a rectangle.

$D(-k, k + 2)$  1A

(ii)  $2(AB + BC) = 48$

$2(2k + 4 + 2k) = 48$  1M

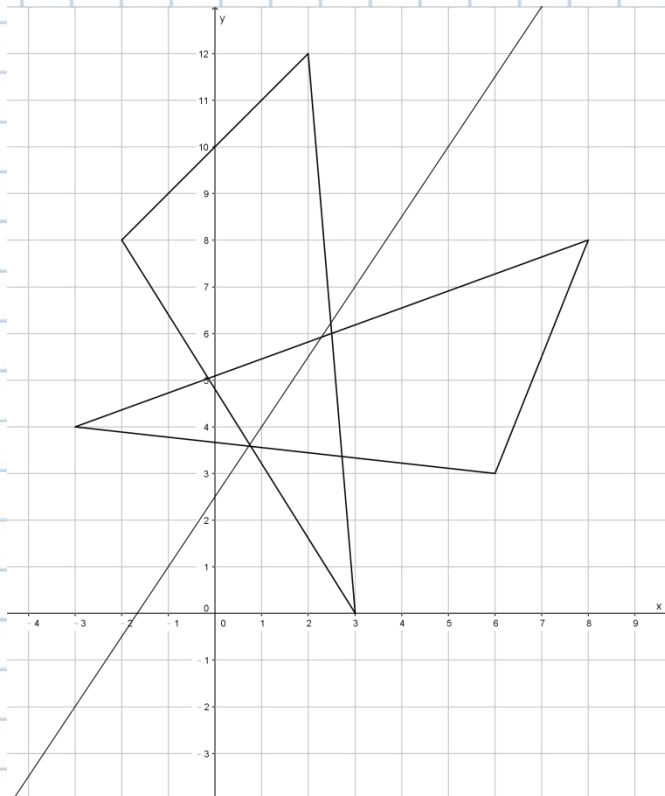
$4k + 4 = 24$

$k = 5$  1A

(4)

**Part C – Bonus Questions (7 marks)**

1. (a)



1A

(b)  $(0, 2.5)$  (accept  $(0, 2)$  )

1A

(2)

2. (a)  $B(1,3) \rightarrow C(7,3) \rightarrow D(3,3)$

3A

(b)  $AB + BC + CD = 2 + 6 + 4 = 12$

2A

(5)