

ANALYTICAL GEOMETRY TEST

Grade 10

Mathematics

Marks: 50

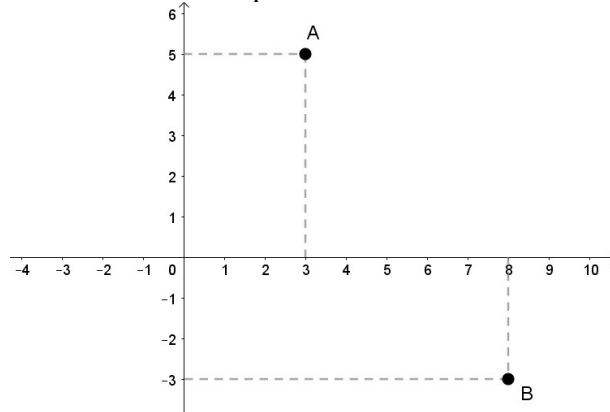
Time: 1 hour

Name: _____



QUESTION 1

Points A and B are plotted on the Cartesian plane as shown below.



1.1 Determine the distance AB.

(3) S1501

1.2 What is the gradient of the line passing through points A and B?

(3) S1504

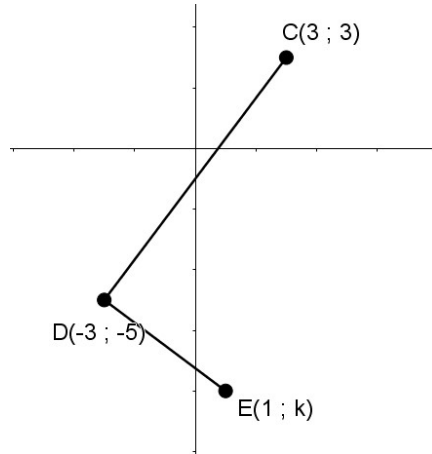
1.3 Determine the coordinates of the midpoint M of the line segment joining A and B.

(3) S1503

[9]

QUESTION 2

2.1 In the diagram below, $C(3 ; 3)$, $D(-3 ; -5)$ and $E(1 ; k)$ are three points in the Cartesian plane.



2.1.1 Calculate the length of CD.

(3)

S1501

2.1.2 Calculate the gradient of CD.

(3)

S1504

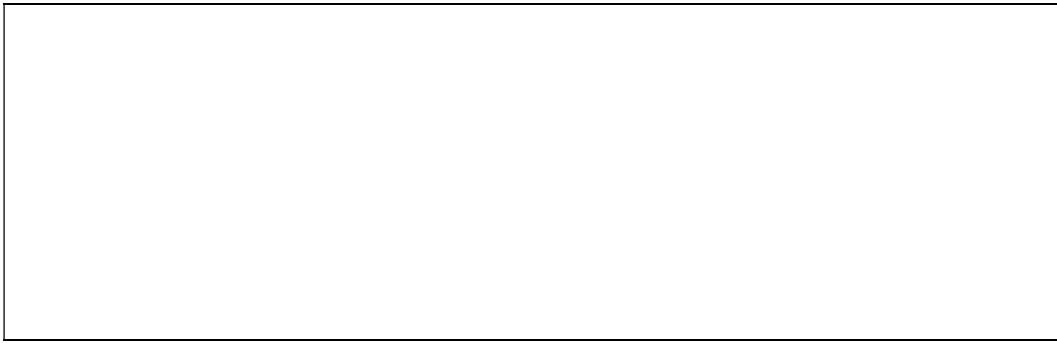
2.1.3 Determine the value of k if $\widehat{CDE} = 90^\circ$.

(4)

S1504

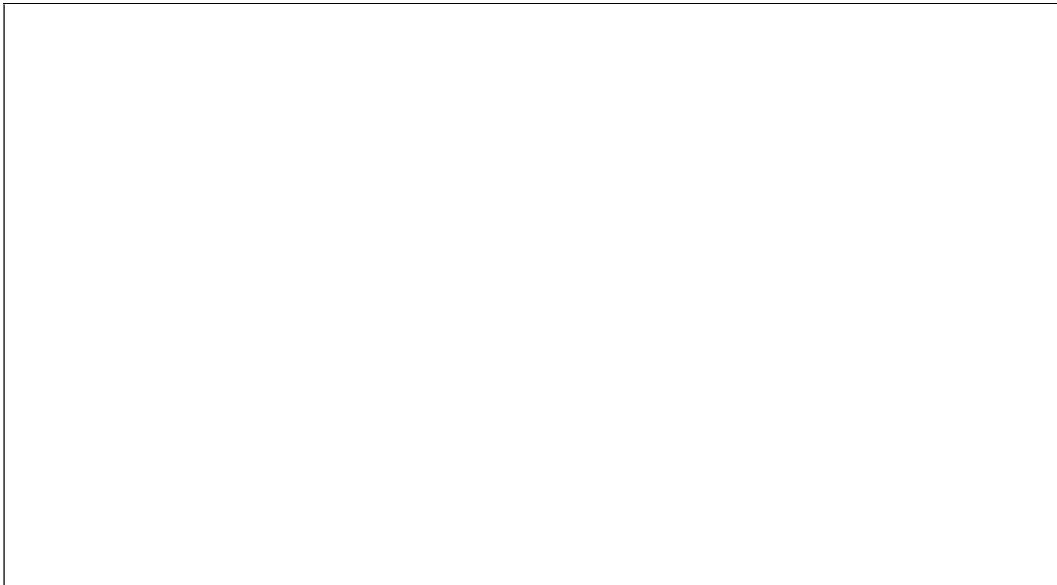
2.1.4 If $k = -8$, determine the coordinates of M, the midpoint of CE.

(3) S1503



2.1.5 Determine the coordinates of point F such that the quadrilateral CDEF is a rectangle.

(4) S1505



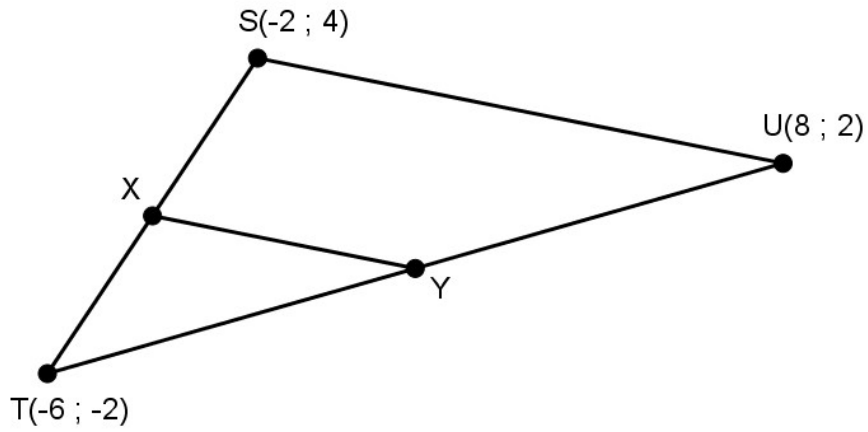
2.2 G is the point $(0; -4)$. The point H lies in the second quadrant and has coordinates $(x; 2)$. If the length of GH is $\sqrt{61}$ units, calculate the value of x .

(4) S1502



QUESTION 3

In the diagram below, the coordinates of ΔSTU are given as $S(-2 ; 4)$, $T(-6 ; -2)$ and $U(8 ; 2)$. X and Y are the midpoints of ST and TU respectively.



3.1 Calculate the coordinates of X and Y .

(6)

S1503

3.2 Show that:

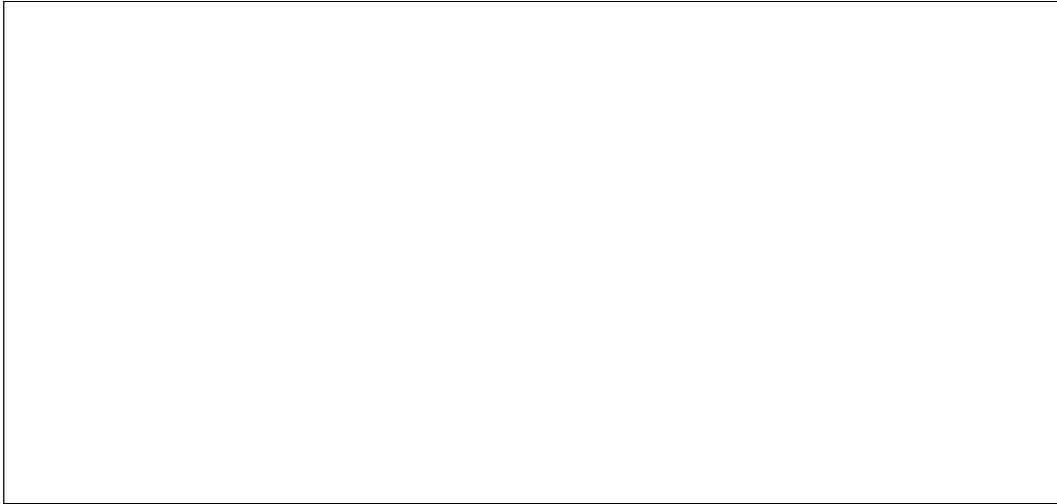
S1504

3.2.1 $XY \parallel SU$

(4)

3.2.2 $XY = \frac{1}{2}SU$

(4)



3.3 Calculate, to two decimal places, the perimeter of ΔSTU .

(6)

S1502



[20]

Total: 50 Marks