Wynberg Boys' High School

Department of Mathematics

Grade 8 – June 2016 Paper 2

Time allowed: 90 minutes   Maximum Marks: 85

175

1841-2016

SUPERA MORAS

Instructions:

1. Where relevant all reasons and all steps in logic need to be clearly given.

2. Any construction lines need to be left in place and diagrams need to be clearly labelled.

3. Questions 1, 2, 3, 4 and 9 must all be completed on the diagram sheet that has been provided. All other questions must be completed on lined paper. Please staple the diagram sheet to the front of your lined paper.

4. No calculators may be used.

5. GOOD LUCK AND ENJOY THE PAPER!

Question 1:

In the space provided construct ΔABC with $A\hat{B}C = 37°$, $BC = 14$ cm and $AB = 100$ mm. (8)

Question 2:

You are given ΔGHK on the diagram sheet.

a) Measure the size of $K\hat{G}H$ to the nearest degree. (2)

b) Measure the length of GH to the nearest millimetre. (2)

c) Construct the angle bisector of $G\hat{H}K$. (4)

d) Construct the altitude from G. (4)

Question 3:

You are given ΔPQR on the diagram sheet.

Construct the perpendicular bisectors of the sides and thus construct the circumscribed circle of the triangle. (8)

Question 4:

You are given ΔXYZ on the diagram sheet.

a) Construct the centroid of the triangle. (6)

b) Measure the distance from X to the centroid, correct to the nearest millimetre. (2)
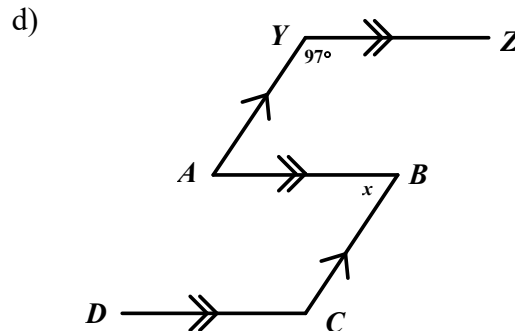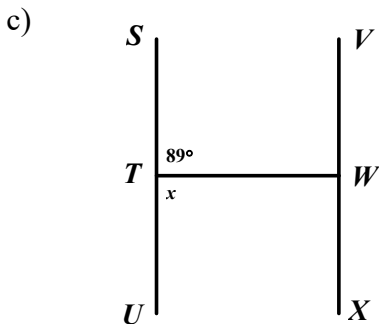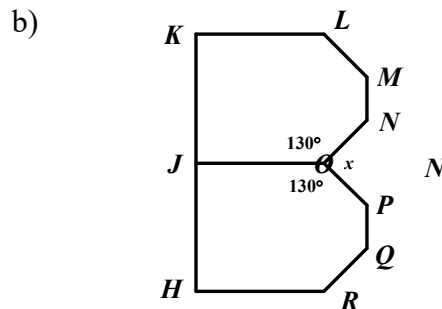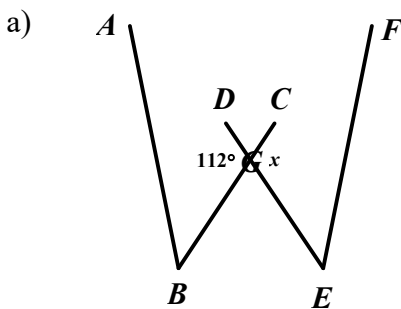
Question 5:

Complete the following sentences:

a)   The supplement of $67°$ is . . . .   (1)

b)   The exterior angle of a triangle is equal to . . . .   (1)

c)   The co-interior angles formed when a transversal cuts a pair of
       parallel lines are . . . .   (1)

d)   An octagon has . . . . sides.   (1)

e)   The diagonals of a kite intersect . . . .   (1)

f)   A triangle with all sides unequal is called a /an . . . . triangle.   (1)

g)   An equilateral triangle has each angle equal to . . . . degrees.   (1)

h)   An angle of $223°$ is called a / an . . . . angle.   (1)

i)   The minute hand of a clock moves through . . . . degrees in 35 minutes. (1)

j)   The complement of $30° - x$ is . . . .   (2)

Question 6:

Find, with reasons, the size of x in each of the diagrams below.
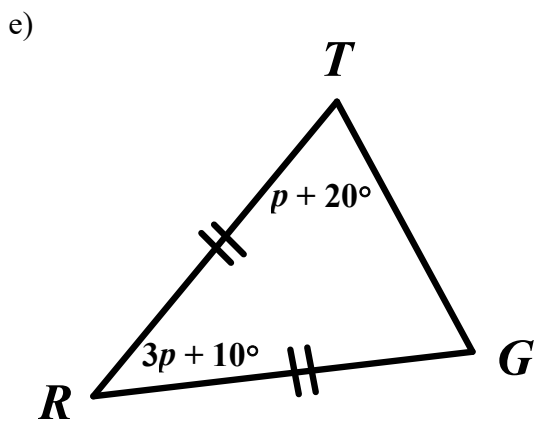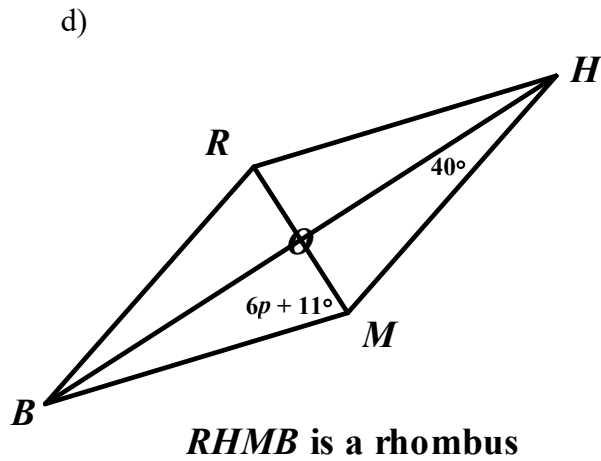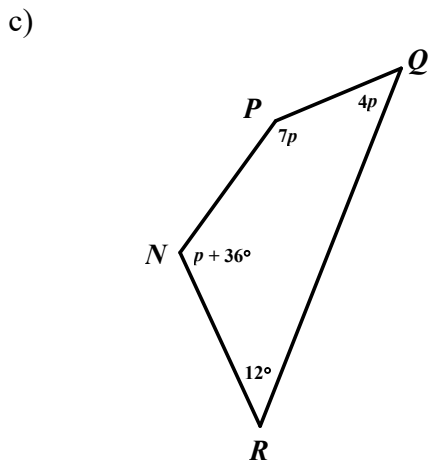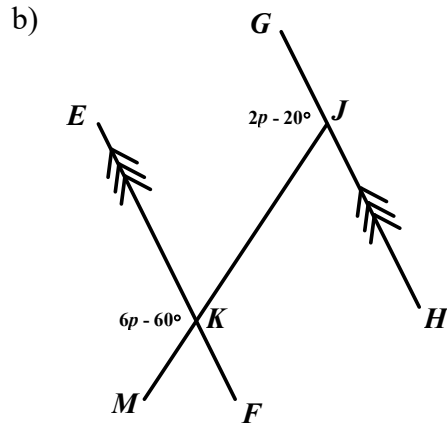(Do not redraw diagrams unless you need to do so.)   (2, 2, 2, 4)
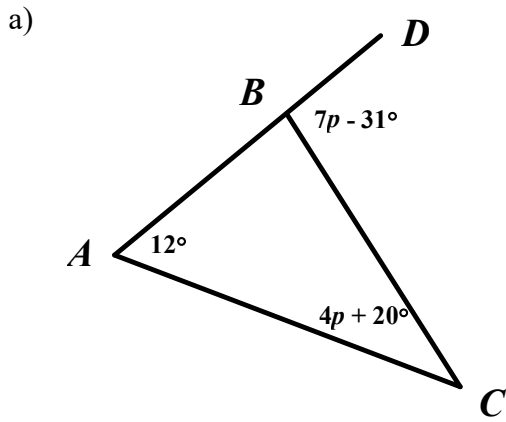
a)

b)

c)

d)

Question 7:

For each of the diagrams, set up an equation and solve it to find the value of p.
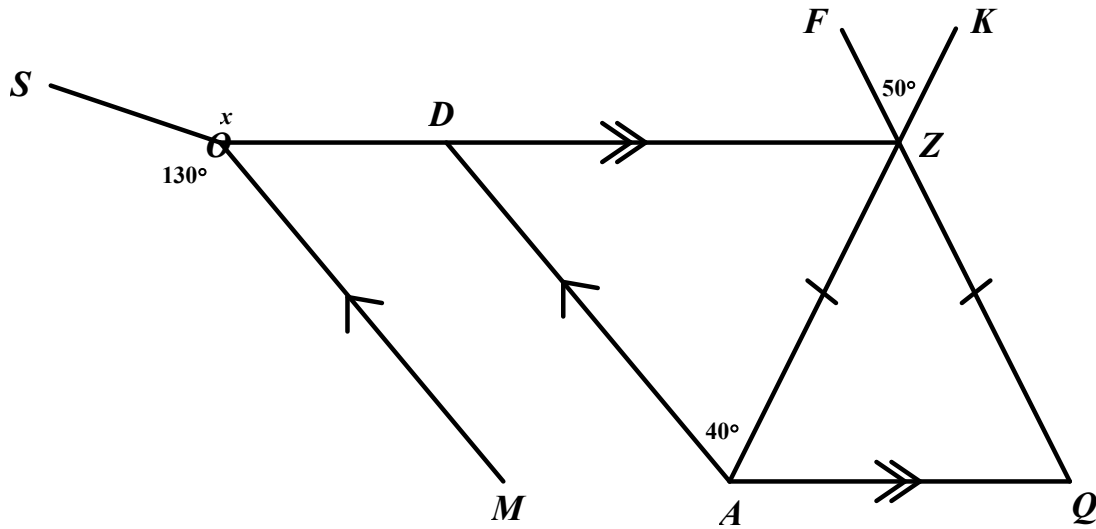(Do not redraw diagrams unless you need to do so.) (4×5)

a)

D

B

$7p - 31°$

A $12°$

$4p + 20°$

C

b)

G

E

$2p - 20°$ J

$6p - 60°$ K

H

M F

c)

Q

P $4p$

$7p$

N $p + 36°$

$12°$

R

d)

H

R

$40°$

$6p + 11°$

M

B

RHMB is a rhombus

e)

T

$p + 20°$

$3p + 10°$

R G

Question 8:

Find the size of the angle marked *x*, showing all reasoning.   (5)
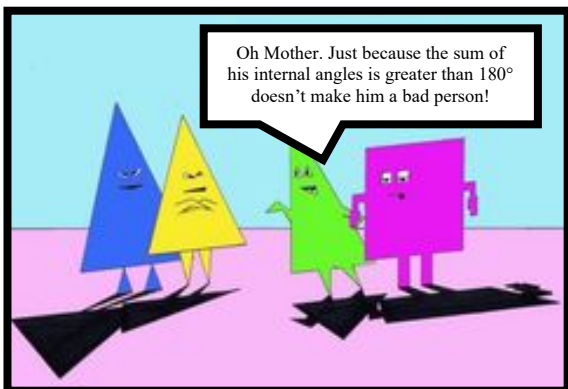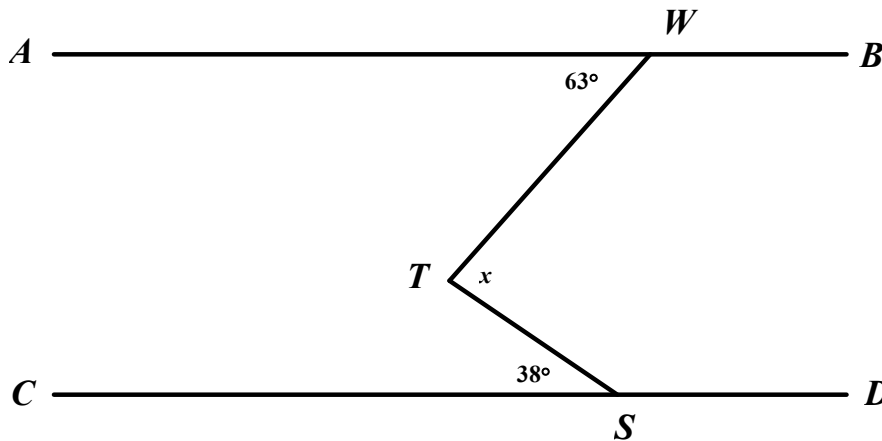

Question 9:

On the diagram sheet the figure below (in which *AB // CD*) has been reproduced three times.
On the first copy draw an extra line and below the diagram show how you would find the value of *x*.
Now by drawing a different line on each of the next two copies, show how
you could find *x* in two different ways. Full working and reasons must be
given below each diagram.   (3)

Many arts there are which beautify the mind of man; but of all none do more garnish and beautify it than those arts which are called mathematical, unto the knowledge of which no man can attain, without perfect knowledge and instruction of the principles, grounds, and Elements of Geometry.

~ John Dee

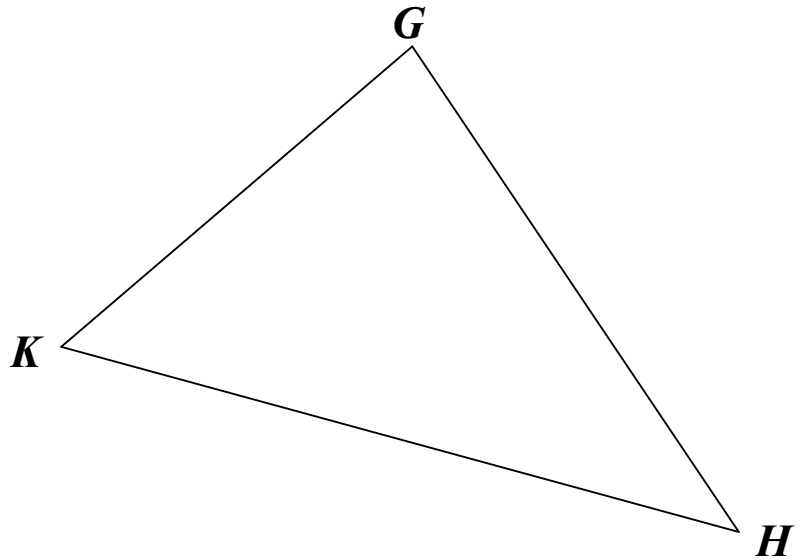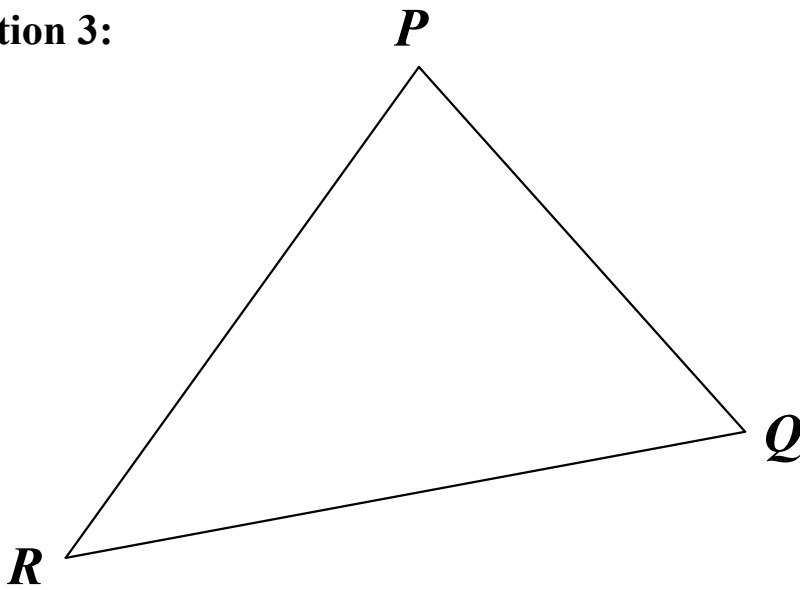**Question 1:**   **Name:** . . . .

Question 2:

a) $K\hat{G}H$ = ...

b) GH = ...

Question 3:

Question 4:
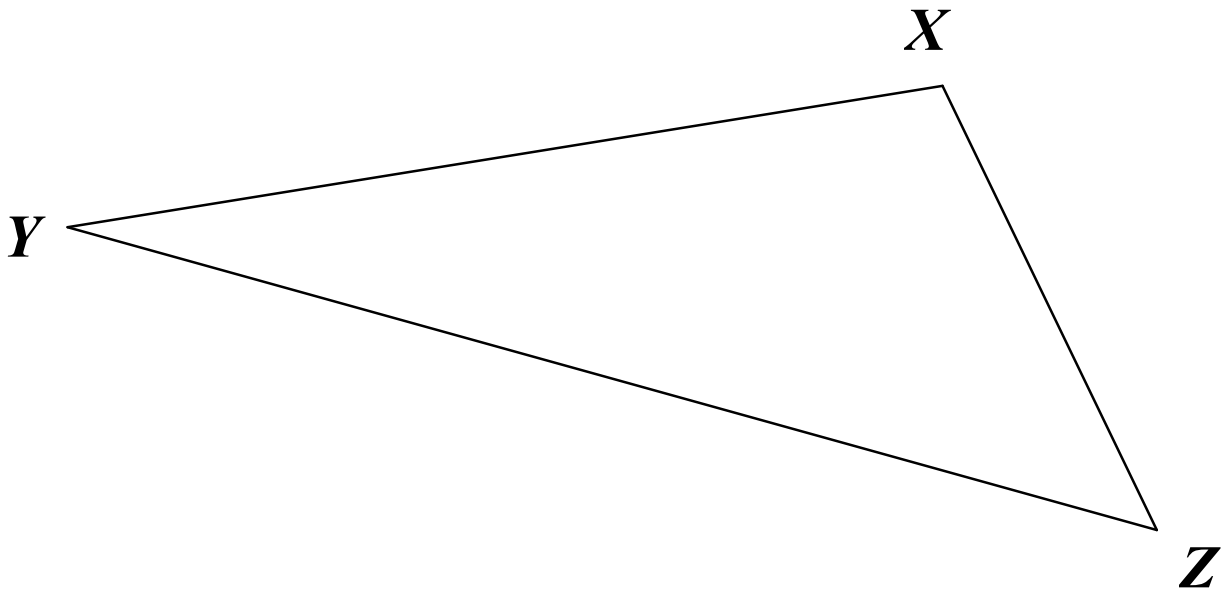
b)   *X* to centroid = ...

Question 9: