GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

JUNE 2016

GRADE 10

MATHEMATICS
(Paper 2)

TIME: 60 minutes

MARKS: 50

7 pages + 2 answer sheets

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

MATHEMATICS
(Second Paper)

TIME: 60 minutes

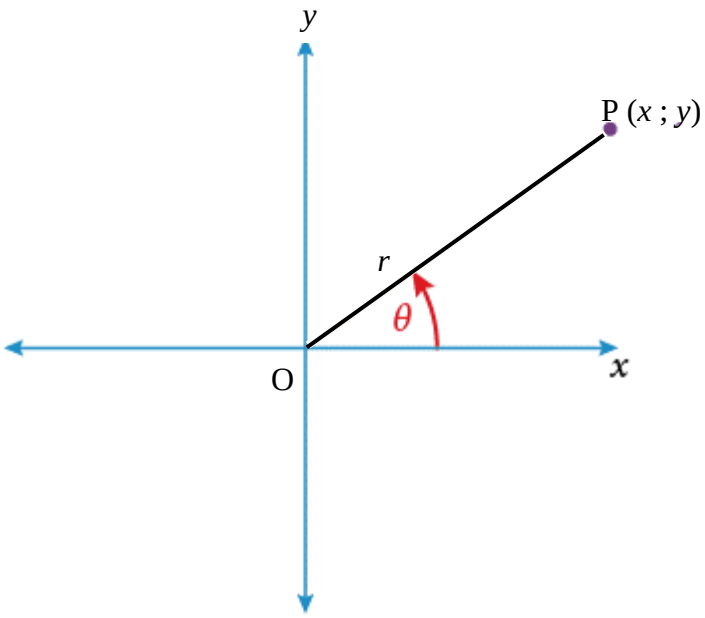
MARKS: 50

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Clearly show ALL calculations, diagrams, graphs etc. that you have used in determining your answers.
3. Answers only will not necessarily be awarded full marks.
4. An approved scientific calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
5. If necessary, answers should be rounded-off to TWO decimal places, unless stated otherwise.
6. Diagrams are NOT necessarily drawn scale.
7. Answer sheets for Questions 4 – 7 are located at the end of the question paper. Write your name in the spaces provided and submit them together with your ANSWER BOOK.
8. Number the answers according to the numbering system used in this question paper.
9. It is in your interest to write legibly and to present your work neatly.

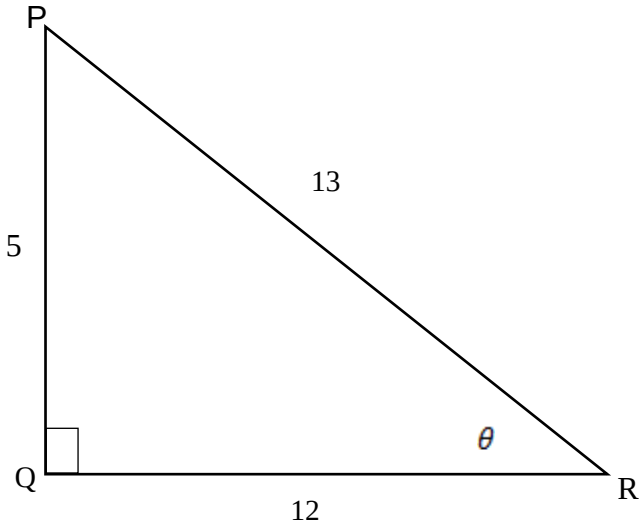
QUESTION 1

1.1 If point $P(x\,;y)$ is a point on the Cartesian plane and OP = r units. Determine $\dfrac{\sin\theta}{\cos\theta}$.



(3)

1.2 In ΔPQR, $\hat{Q} = 90°$ and $\hat{R} = \theta$. $PQ = 5$ units, $QR = 12$ units and $PR = 13$ units.



Write down the values of:

1.2.1 $\sin\theta$ (1)
1.2.2 $\sec\theta$ (1)
1.2.3 $\tan\theta$ (1)
[6]

QUESTION 2

If $4\tan\theta = -3$ and $\cos\theta$ is positive, use a sketch to calculate the value of :

2.1 $5\sin\theta + 3\cot\theta$ (5)

2.2 $25\cos^2\theta$ (2)

[7]

QUESTION 3

3.1 If $x = 42°$ and $y = 68°$, by using a calculator, determine the value of:

3.1.1 $\sin x + 2\cos 3y$ (2)

3.1.2 $3\tan^2(x + y)$ (2)

3.2 Determine the value of θ, if $\theta \in 0° \leq \theta \leq 90°$, correct to 3 decimal places.

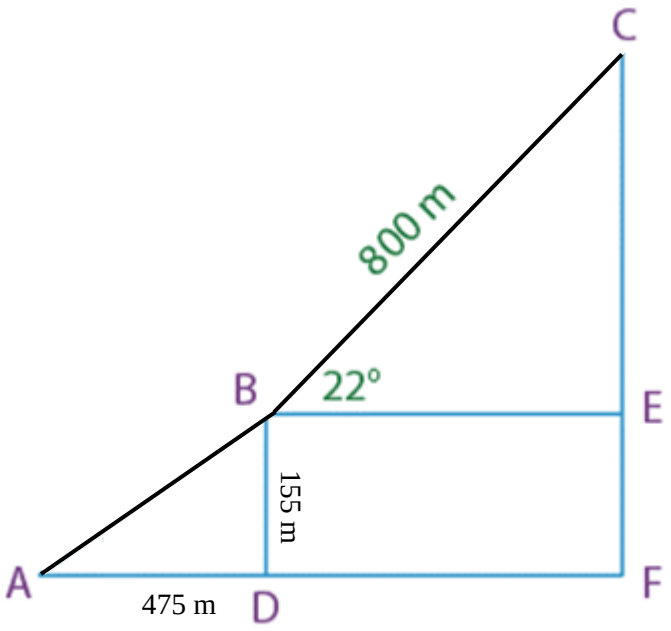
3.2.1 $2\sin\theta = 1{,}432$ (2)

3.2.2 $\tan 3\theta = 6{,}345$ (3)

[9]

QUESTION 4

4.1 In the diagram below BDFE is a rectangle with BD = 155 m. AD = 475 m and BC = 800 m. The angle of elevation from B to C is 22°.



Calculate:

4.1.1 $\hat{A}$ (2)

4.1.2 CF (3)

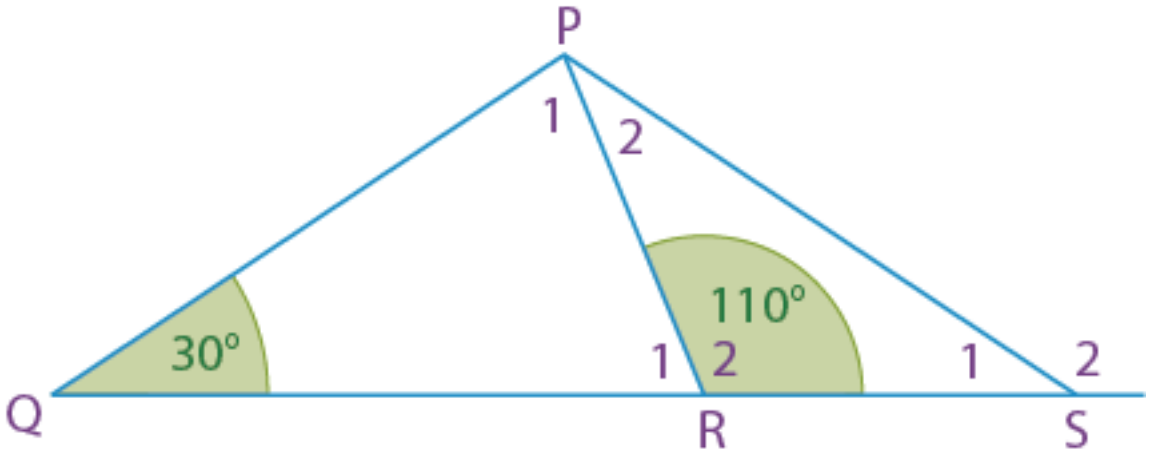
4.2 Without the use of a calculator, calculate the value of :

$\sin^2 45° - \cos 60° + \tan 10°.\cot 10°$ (4)

[9]

QUESTION 5

In the diagram, $\hat{Q} = 30°$, $\hat{R}_2 = 110°$ and $PR = RS$.



Determine, with reasons, the sizes of the following angles:

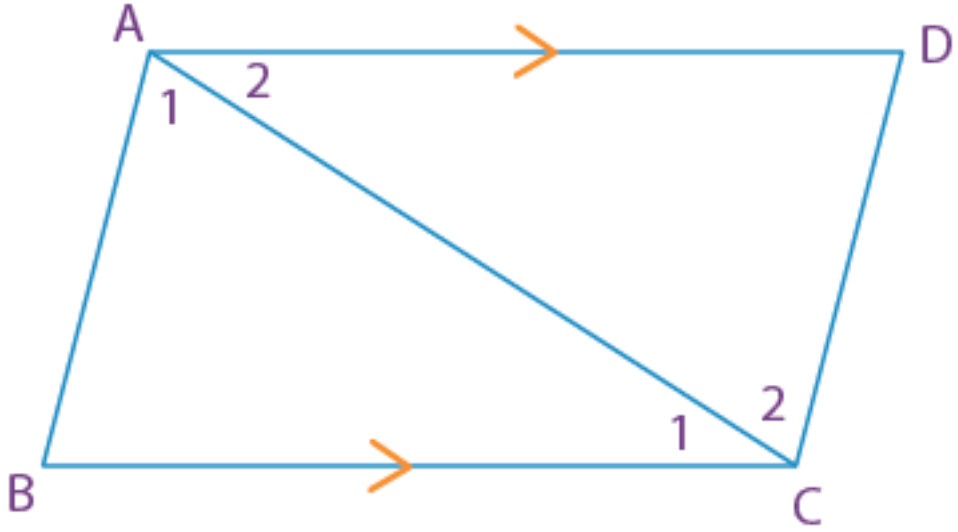
5.1 $\hat{P}_1$ (2)

5.2 $\hat{P}_2$ (3)

[5]

QUESTION 6

In quadrilateral ABCD, AD//BC and $\hat{B} = \hat{D}$. Prove that ABCD is a parallelogram.

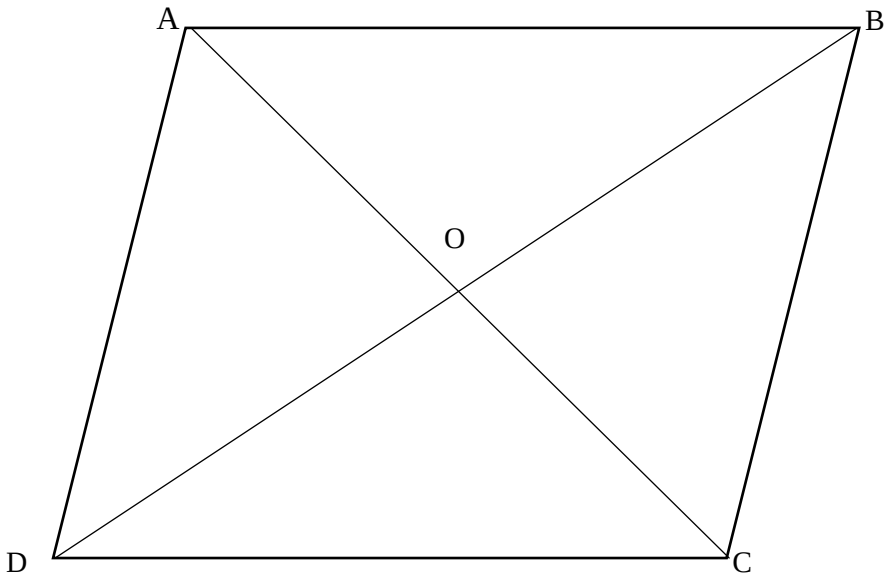


(5)

[5]

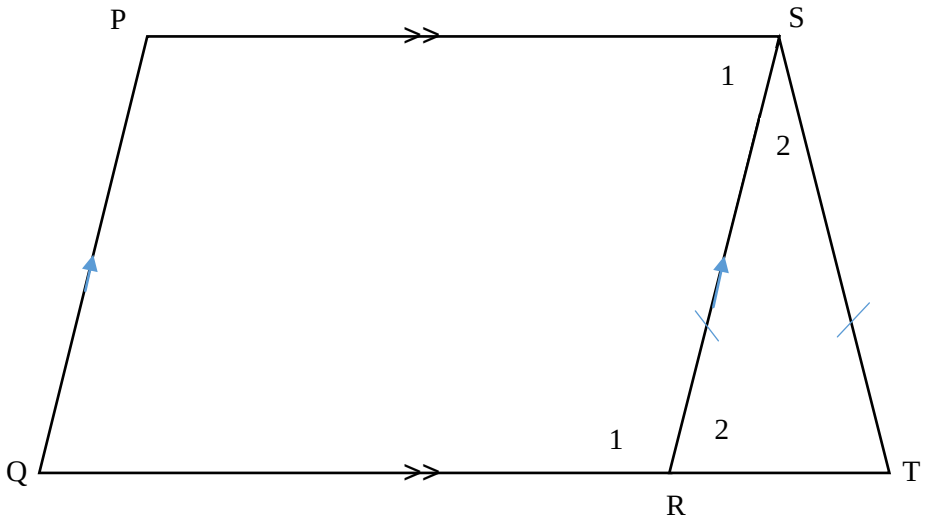
QUESTION 7

7.1 In the quadrilateral, diagonals, AC and BD bisect at O. If $AC = 4xy$; $BC = x^2 + y^2$ and $BD = 2x^2 - 2y^2$, prove that ABCD is a rhombus.



(5)

7.2 PQRS is a parallelogram, SR = ST and $\hat{P} = 120°$.



If $\hat{S}_2 = 4x$, calculate the value of x. (4)

[9]

TOTAL: 50

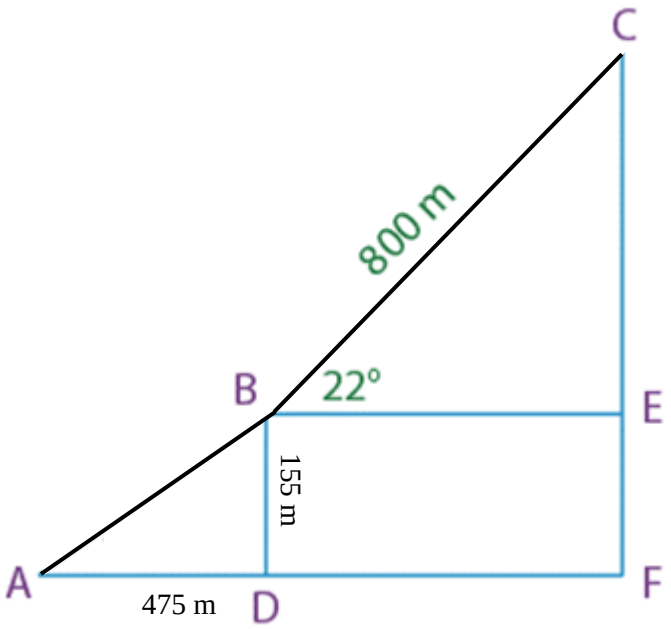
END

ANSWER SHEET 1

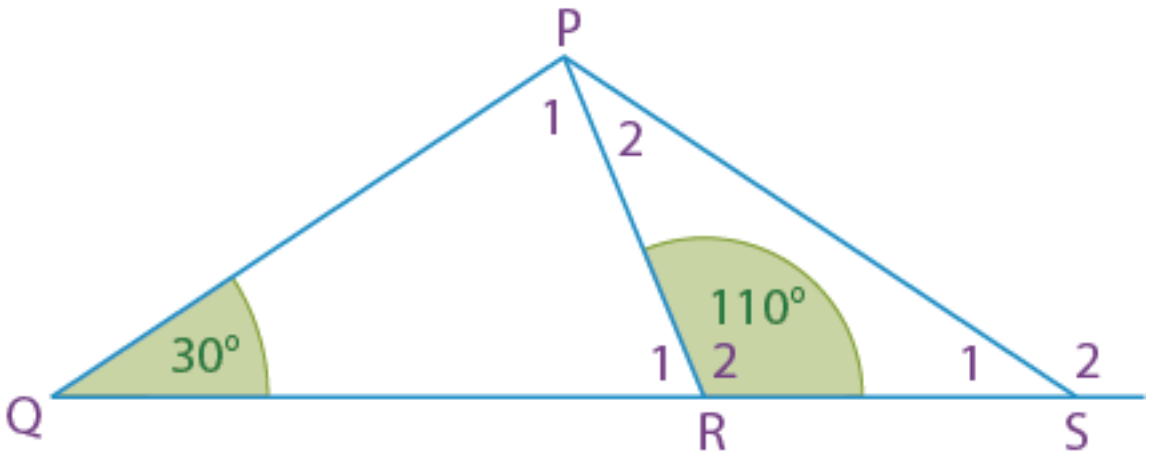
NAME OF LEARNER: _____

GRADE: _____

QUESTION 4



QUESTION 5

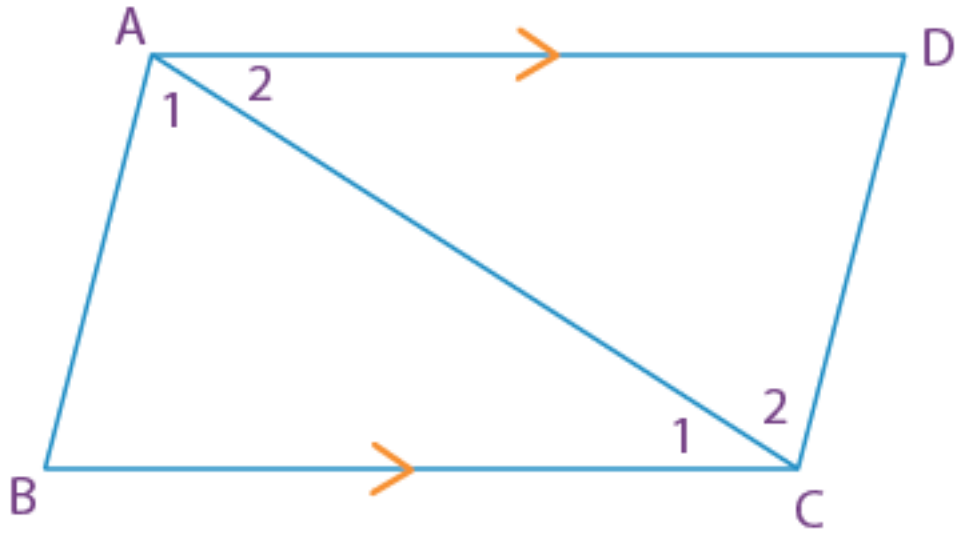


ANSWER SHEET 2

NAME OF LEARNER: _____

GRADE: _____

QUESTION 6



QUESTION 7

7.2