Phindavele High School

Grade 10 Mathematics

Term2 Short Test

Duration: 1hr

Marks: 30

3 May 2022

Teacher: Mrs Msani

Moderator: Mr Ntwanambi

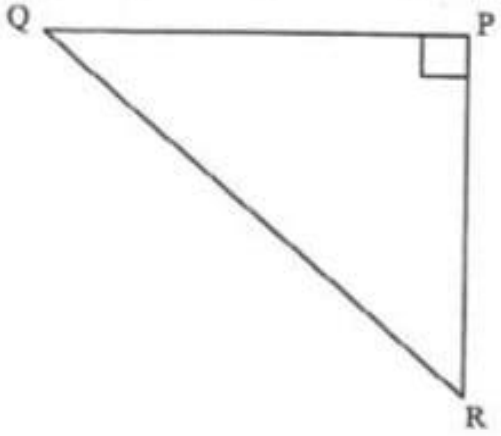
INSTRUCTIONS

1) MUST ANSWER ALL QUESTIONS.
2) ROUND OF TO TWO DECIMAL PLACES **UNLESS STATED OTHERWISE.**
3) USE OF CALCULATOR IS ALLOWED **UNLESS STATED OTHERWISE.**
4) COMMUNICATION DURING TEST/EXAMINATION PROGRESS IS PROHIBITED.

Question 1

Question 1

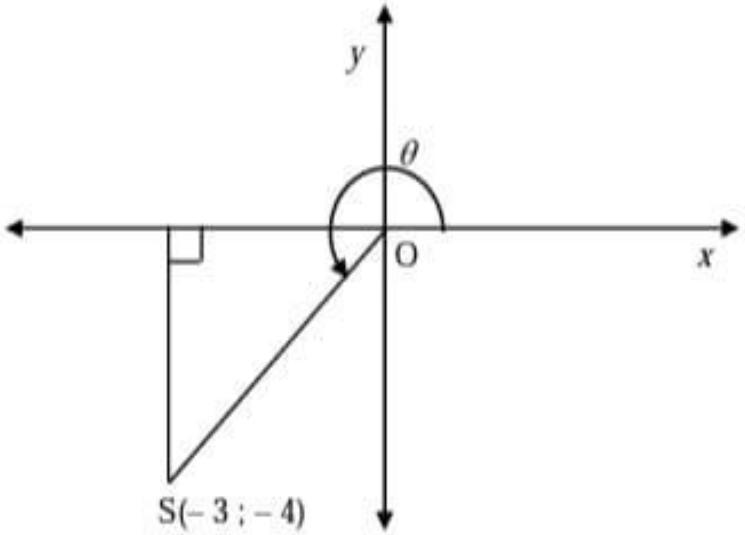
1.1 In the diagram below, ΔPQR is a right angled triangle with $P\hat{Q}R = 90°$



1.1.1 Use the sketch to determine the ratio of $\tan(90° - R)$ (1)

1.1.2 Write down the trigonometric ratio that is equal to $\frac{QR}{QP}$ (1)

1.2 $S(-3;\ -4)$ is a point on the Cartesian plane such that OS makes an angle θ with the positive x-axis.



1.2.1 The length of OS (2)

1.2.2 The value of $\sec\theta + \sin^2\theta$ (3)

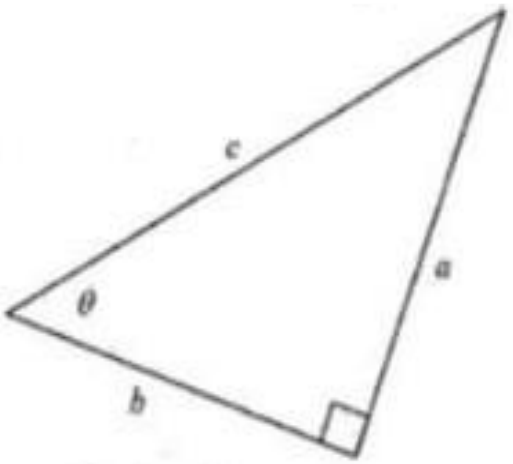
1.3 Determine the value of the following WITHOUT using a calculator:

$$\frac{\text{cosec } 45°}{\sin 90°.\tan 60°}$$ (4)

[11]

Question 2

2.1. A right-angled triangle has sides a,b, and c and the angle θ as shown below.



2.1.1 Write the following in terms of a, b and c:

(a) Cosθ **(1)**

(b) tanθ **(1)**

(c) sin(90- θ) **(1)**

2.2 Given that A=38.2^o and B=146.4^o, calculate the value of 2cosecA + cos 3B. **(2)**

2.3 Given that 5cos β – 3 = 0 and $0^o \leq \beta \leq 90^o$.

If α + β= 90^o and $0^o \leq \alpha \leq 90^o$, calculate the value of cot α. **(3)**

Question 3

3.1 If $\tan\theta = \frac{8}{6}$, $\theta \in [180°; 360°]$, use a diagram to calculate the following:

$$\sin\theta - \cos\theta$$ (4)

3.2 If $\sin\alpha = p$, where $0° \leq p \leq 90°$, write the following in terms of p.

3.2.1 $\cos^2\alpha$ (2)

3.2.2 $\tan\alpha$ (1)

3.3 Solve for x, correct to 2 decimal places, for $0° \leq x \leq 90°$:

3.3.1 $\sin 2x = 0{,}682$ (2)

3.3.2 $\sin(x - 40°) = 0{,}58$ (2)

[11]