 **Methods 11 Test 5 2018**

**Trigonometry**

**Total Marks: 60 Time Allowed: 60 minutes**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SECTION A – Resource Free 40 minutes – 37 marks**

**ALL** working must be shown for full marks.

**1.** **[3, 5 = 8 marks]**

Solve the equations:

a) for

b)

**2. [6 marks]**

Complete the following table.

|  |  |  |
| --- | --- | --- |
| **Function** | **Period** | **Amplitude**  **(where applicable)** |
| y = 5 sin (3x°) |  |  |
| y = -6 cos ( + 30°) |  |  |
| v = 7 tan (2t + π) |  |  |

**3.** **[1, 2, 3 = 6 marks]**

Given that sin A = and cos B = , where A and B are acute, find the exact value of:

a) cos A

b) sin B

c) cos (A - B)

**4. [5, 5 = 10 marks]**

Use an appropriate trigonometry identity to find the exact value of:

(Simplify to a whole number denominator)

a) b)

**5. [3, 2, 2 = 7 marks]**

In the circle of radius 5 cm with centre 0 drawn below,

a) Find the exact size of triangle OAB. Explain how you arrived at your answer.

A

O

B

b) Find the exact area of the minor segment formed by the cord AB.

c) Find the exact perimeter of the minor segment formed by the cord AB.

**Methods 11 Test 5 2018 (trigonometry)**

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**SECTION B – Calculators**  **20 minutes – 23 marks**

**6. [1, 1, 1, 1, 5 = 9 marks]**

The body temperature θ (Celsius) of a reptile in summer at time t hours after midnight is given by

Θ = 15 – 5 sin ()

a) State the period for θ

b) What is the range of body temperature experienced by the reptile?

c) Find the maximum body temperature of the reptile and state when this first occurs after midnight.

d) Find the minimum body temperature of the reptile and state when this first occurs after midnight.

e) Use an algebraic method to find the first time (to the nearest minute) when the temperature of the reptile is 16° Celsius.

**7. [5, 5 = 10 marks]**

Solve for θ within the domain:

a)

b)

**8.** **[4 marks]**

If a triangle ABC has an area of 3.75 cm² and a=5cm and c=3cm, find the length of b if angle B is obtuse. YOU MUST SHOW ALL WORKINGS TO RECEIVE FULL MARKS!!!