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| Baldivis Secondary college | |  |
| NAME: | SPECIALIST UNIT 2 - TEST 4 2017 |
| Time: 50 minutes  Resources: 1 A4 page of notes, formula sheet  MARK: /48 | |

**Section 1: Calculator Free (30 minutes) 28 marks**

**Resource**

**Question 1 [6 marks]**

Each graph below is drawn over the same domain but may have a different vertical scale. Choose an equation from the list provided to match each graph.

NOTE: Not all equations will be used.

(1) y = 3sin2x (2) y = −3sinx (3) y = 3cos2x

(4) y = −3cos2x + 1 (5) y = sin2x + 1 (6) y = −3sin2x

(7) y = −2cos3x − 1 (8) y = sin2x − 1 (9) y = −2sin3x



**Question 2 [3 marks]**

Find an exact value for sin 105°.

**Question 3 [3 marks]**

If A and B are acute angles such that tan A =  and tan B = , find an exact value for tan(A+B) and hence A+B.

**Question 4 [3, 3 marks]**

(a) Find **all** solutions for

(b) Solve  

**Question 5 [4 marks]**

State the period and amplitude of

(a) y = 2 sin (3x + ) + 1 Amplitude = \_\_\_\_\_, Period = \_\_\_\_\_

(b) y = -4 cos 2(x + ) Amplitude = \_\_\_\_\_, Period = \_\_\_\_\_

**Question 6 [6 marks]**

State the equation for the following functions:

(a) in the form y = a sin b(x + c) + d



(b) in the form y = a cos b(x + c) + d



(c) in the form y = a tan b(x + c) + d



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**Section 2: Calculator Assumed (20 minutes) 20 marks**

**Question 7 [3 marks]**

Given that Sin A = and Cos B= , where A and B are both acute angles, find the exact value of sin (A – B)

**Question 8 [3 marks]**

If , find the values of x and y

**Question 9 [5 marks]**

1. Express in the form , where
2. Hence solve the equation sin x + cos x = **-**1 for

**Question 10 [3 marks]**

Prove that cos θ sin 2θ = 2 sin θ − 2 sin3 θ

**Question 11 [6 marks]**

Use appropriate trigonometric identities to solve