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| C:\Users\David\Dropbox\rossmoyne.png | **MATHEMATICS METHODS : UNITS 1 & 2, 2020** Test 3 –Trigonometric, Probability, Counting, Exponentials (10%)(1.2.10 to 1.2.16, 1.3.6 to 1.3.17, 2.1.1 to 2.1.7)Calculator Free - Allow 1 Minute of Reading Time |
| **Time Allowed****20 Minutes** | **First Name Surname** | **Marks22 marks** |

**Circle your Teacher’s Name:** Bestall Goh Fraser-Jones Freer Koulianos Luzuk Rudland Tanday

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| **Assessment Conditions: *(N.B. Sufficient working out must be shown to gain full marks)***

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| * Calculators: Not Allowed
* Formula Sheet: Provided
* Notes: Not Allowed
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1. **(3 marks)**

Expand $\left(x^{2}-2\right)^{4}$ leaving your answer in simplified form.

1. **(4 marks)**

Solve for $x$.

$$2×2^{2x}-16=+4(2^{x})$$

1. **(3 marks)**

Simplify the following expression.

$$\frac{3^{2n}+9^{n+1}}{9×9^{n+1}}$$

1. **(3, 2, 3 = 8 marks)**

Solve and proof the follow trigonometric functions.

* 1. Given the $A $and $B$ are obtuse with $sin A =\frac{3}{5}$ and $sin B =\frac{5}{13}$ , determine $sin(A-B)$.
	2. Show that $cos\left(x+\frac{π}{2}\right)=-sin⁡(x)$
	3. Solve $4 – 4 cos^{2}x = 3 for -180° \leq x \leq 90°$
1. **(2, 2 = 4 marks)**



The exponential function above is a translation of $y= 2^{x}$.

* 1. Determine the equation for the function.
	2. Graph the function $y= 2^{x}$ and estimate where the two functions intersect.