

Name:	School:	Target Grade:
-------	---------	---------------

**SECONDARY 1 WA1
MOCK EXAM PAPER****READ THESE INSTRUCTIONS FIRST****INSTRUCTIONS TO CANDIDATES**

1. Find a nice comfortable spot without distraction.
2. Be fully focused for the whole duration of the test.
3. Speed is KING. Finish the paper as soon as possible then return-back to Check Your Answers.
4. As you are checking your answers, always find ways to VALIDATE your answer.
5. Avoid looking through line by line as usually you will not be able to see your Blind Spot.
6. If there is no alternative method, cover your answer and REDO the question.
7. Give non-exact answers to 3 significant figures, or 1 decimal place for angles in degree, or 2 decimal place for \$\$\$, unless a different level of accuracy is specified in the question.

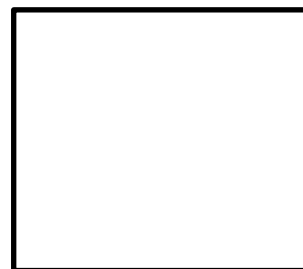
Wish you guys all the best in this test.

You can do it.

I believe in you.

Team Paradigm

If you are struggling in this paper, it's an indication to work harder!
If you need support and personalised guidance, you can find us here
www.mathtutor.com.sg

**PARADIGM**

[Turn Over]

Name: _____

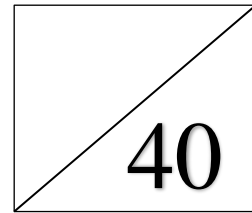
Class: _____

Date: _____

**Secondary 1 Mathematics
WA1 Mock Paper**

Topic: HCF & LCM, Numbers

Duration: 1 hour


HCF LCM

1	(a) Find the highest common factor of 1428 and 2660. [1] (b) Find the lowest common multiple of $2^6 \times 3^2 \times 5^{15}$ and $2^5 \times 3^3 \times 7$. [1] Leave your answer in index notation form. (c) Using prime factorisation, find $\sqrt{2304}$. Show your working clearly. [2] (d) Find the smallest integer value of k where $168k$ is a perfect square. [2]
2	(a) Express 784 as a product of its prime factors. [1] (b) Using your answer in (a) explain why 784 is a perfect square. [1] (c) Find the largest integer that can divide both 784 and 32. [1] (d) Given that $784m$ is a multiple of 42. Find the smallest possible integer value of m . [1]
3	(a) (i) It is given that $240 = 2^4 \times 3 \times 5$. [1] Express 2750 as a product of its prime factors, giving your answer in index notation. [1] (ii) Find the smallest positive integer k for which $240k$ is a multiple of 2750. [1] (ii) Find the smallest positive integer n for which $\sqrt[3]{2750n}$ is a whole number. [1]

HCF LCM (Word Problems)

1	<p>(a) Express 450 as the product of its prime factors.</p> <p>(b) Mr. Ng distributed 150 rulers, 450 pens, and 350 pencils equally among his students.</p> <p>(i) Calculate the largest possible number of students in his class.</p> <p>(ii) Find the number of rulers, pens and pencils that were given to each student.</p>	[1] [1] [1]
2	<p>A red light flashes once every 28 seconds, a blue light flashes once every 45 seconds and a yellow light flashes once every 42 seconds.</p> <p>Given that all lights flash together at 9.00 am, find the time that all three lights next flash together again.</p>	[2]

Numbers (Definitions)

1	Consider the following set of numbers. $29, \sqrt{5}, \frac{3\pi}{2}, 1, 0.\dot{2}\dot{3}, 7^3, \sqrt{16}, 9$ Write down all (a) the irrational number(s), (b) the prime number(s), (c) the perfect square(s).	[1] [1] [1]
2	(a) Write the following in order of size, starting with the smallest. $0.\dot{3} \quad \frac{3}{10} \quad 302\% \quad \pi \quad \sqrt{0.3}$ (b) Write down the rational numbers from the following set of numbers. $3.14 \quad 0.810 \quad \pi \quad (-2)^2 \quad 3\sqrt{3} \times \sqrt{3} \quad \sqrt[3]{-10}$	[1] [2]
3	For the list of numbers below, $-1.5, \quad \frac{\pi}{2}, \quad \sqrt{10}, \quad 15, \quad \sqrt[3]{27}, \quad 0.21$ (a) State all the irrational number(s). (b) State all the composite number(s). (c) Write down the numbers in ascending order.	[1] [1] [2]

Numbers (Orders of Operations)

1	Evaluate the following without using calculator. Show your working clearly. (a) $2 - (-3) - 5 \times 5 \div (10 - 15)^2$ (b) $3\frac{3}{5} + (-2) - \left(\frac{2}{3} + \frac{5}{6}\right) \div 1\frac{1}{6}$	[3] [3]
---	---	------------

Approximation and Estimation

1	(a) 10.0945 correct to 2 decimal places, (b) 20 947 correct to 3 significant figures.	[1] [1]
2	Estimate the value of $\frac{12.46 - \sqrt{9.23}}{1.01 + 3.84}$ by writing each number correct to 1 significant figure. Show your working clearly.	[2]
3	Use a calculator to evaluate $\frac{3(\sqrt{2020} - 3.14^3)}{500(\sqrt[3]{65})}$ correct to (a) 4 significant figures. (b) 3 decimal places.	[1] [1]

Answer Key
HCF/LCM

1	<p>(a) $1428 = 2 \times 2 \times 3 \times 7 \times 17$ $2660 = 2 \times 2 \times 5 \times 7 \times 19$ HCF of 1428 and 2660 $= 2 \times 2 \times 7$ $= 28$</p> <p>(b) Lowest common multiple of $2^6 \times 3^2 \times 5^{15}$ and $2^5 \times 3^3 \times 7$ $= 2^6 \times 3^3 \times 5^{15} \times 7$</p> <p>(c) $2304 = 2^8 \times 3^2$ $= \sqrt{2304}$ $= \sqrt{2^8 \times 3^2}$ $= 48$</p> <p>(d) $168 = 2^3 \times 3 \times 7$ $168k = 2^4 \times 3^2 \times 7^2$ (perfect sq) $k = 2 \times 3 \times 7$ $k = 42$</p> <p>Ans: (a) 28 (b) $2^6 \times 3^3 \times 5^{15} \times 7$ (c) 48 (d) $k = 42$</p>	
2	<p>Ans: (a) $2^4 \times 7^2$, (b) 784 can be expressed as $(2^2 \times 7)^2$ OR the powers of each of its prime factor is even/divisible by 2/is a multiple of 2. (c) 16 (d) 3</p>	
3	<p>Ans: (a)(i) $2750 = 2 \times 5^3 \times 11$ (ii) $k = 275$ (iii) $n = 484$ (b)(i) 10 cm (ii) 126</p>	

HCF LCM (Word Problems)

1	<p>(b)(i) $150 = 2 \times 3 \times 5^2$ $350 = 2 \times 5^2 \times 7$ HC of 150, 450 and 350 is $2 \times 5^2 = 50$ Largest possible number of students = 50</p> <p>Ans: (a) $450 = 2 \times 3^2 \times 5^2$, (b)(i) 50, (b)(ii) 3 rulers, 9 pens, and 7 pencils</p>	
2	<p>$28 = 2^2 \times 7$ $45 = 3^2 \times 5$ $42 = 2 \times 3 \times 7$</p> <p>LCM = $2^2 \times 3^2 \times 5 \times 7$ $= 1260$ seconds $= 21$ minutes Time = 0900 + 0021 $= 0921$</p> <p>Ans: Time = 0921</p>	

Numbers (Definitions)

1	Ans: (a) $\sqrt{5}, \frac{3\pi}{2}$ (b) 29 (c) $\sqrt{16}, 1, 9$	
2	Ans: (a) $\frac{3}{10}, 0.3, \sqrt{0.3}, 302\%, \pi$, (b) 3.14, 0.810, $(-2)^2, 3\sqrt{3} \times \sqrt{3}$	
3	Ans: (a) $\frac{\pi}{2}, \sqrt{10}$, (b) 15, (c) $-1.5, 0.\dot{2}1, \frac{\pi}{2}, \sqrt[3]{27}, \sqrt{10}, 15$	

Numbers (Orders of Operations)

1	<p>(a) $2 + 3 - 25 \div (-5)^2$ $= 2 + 3 - 25 \div 25$ $= 5 - 1 = 4$</p> <p>(b) $\frac{18}{5} - 2 - \left(\frac{4}{6} + \frac{5}{6}\right) \div \left(\frac{7}{6}\right)$ $= \frac{18}{5} - 2 - \frac{9}{6} \div \frac{7}{6}$ $= \frac{18}{5} - 2 - \frac{9}{6} \div \frac{6}{7}$ $= \frac{18}{5} - 2 - \frac{9}{7}$ $= \frac{126}{35} - \frac{70}{35} - \frac{45}{35} = \frac{11}{35}$</p> <p>Ans: (a) 4 (b) $\frac{11}{35}$</p>	
---	--	--

Approximation and Estimation

1	Ans: (a) 10.09 (b) 20 900	
2	$\frac{10-\sqrt{9}}{1+4}$ $= 1.4$ or $1\frac{2}{5}$ Ans: 1.4 or $1\frac{2}{5}$	
3	Ans: (a) 0.02087, (b) 0.021	