GATITU SECONDARY SCHOOL

Form 1	Term 2	121 A - Mathematics	17-Mei-16	Opener

ADM…… NAME …… CLASS ……..

1. Round off ;
   a) 468.3894 to **two** decimal places **(1mk)**

   b) 43264 to the nearest on **thousand** **(1mk)**

2. What is the **Greatest Common Divisor** of 33, 121 and 143? **(1mk)**

3. Express the following numbers in terms of their **prime factors**;

   i) 360 **(2mks)**

   ii) 90 **(2mks)**

4. What is the **place value** and **total value** of digit 5 in 8950403? **(2mks)**

5. Solve for the equation below: **(2mks)**

$$\frac{1\frac{1}{4}\times 2\frac{1}{2}}{3\frac{1}{2}-2\frac{1}{4}}$$

6. Find the **LCM** of 45, 12, and 9? **(2mks)**

7. Attempt question (a) and (b) **(6mks)**

   a. Fill the blank space below

   A number is divisible by 9 if the _____ of its digits is divisible by 9

   b. Test whether **712 008** is divisible by: ***(note:** give your answer as a "**yes**" or "**no**")*

   i. 2 _____

   ii. 3 _____

   iii. 8 _____

   iv. 9 _____

   v. 11 _____

8. Express the following recurring decimals as a fraction

a. $0.\dot{5}2\dot{3}$ **(2mks)**

b. $0.2\dot{5}\dot{6}$ **(2mks)**

9. Find the value of **y**:

a. $5 \times 6 - 76 \div 4 + 27 \div \boldsymbol{y} = 20$ **(2mks)**

b. $-7 \times 41 + 36 \div \boldsymbol{y} + 12 \times 12 = -139$ **(2mks)**

c. $24 \div 3 + 4 \times 5 - y \div 4 \times 10 + 1 = 9$ **(2mks)**

10. A classroom floor is made of small square tiles of side $\frac{1}{20}m$. If the floor measures $6m\ by\ 5m$, how many square tiles are needed to cover the floor? **(1mk)**

1. Round off:

a) 468.3894 to two decimal places

468.3894

1d.p 2d.p

468.39 ✓1

(b) 43264 to the nearest one thousand.

43264

1 ones
tens
Hundreds
thousands

Since 2 is less than 5, the answer is: 43 000 ✓1

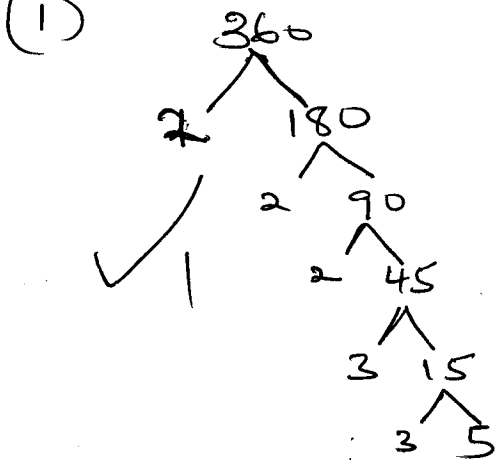
2. What is the GCD of 33, 121 and 143?

11	33	121	143
	3	11	13

= 11 ✓1

3 Prime factors

(i)



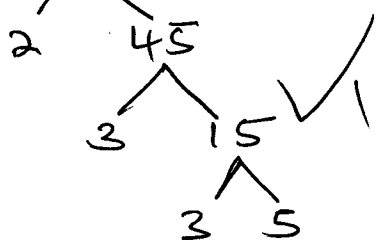
✓1

= 2x2x2x3x3x5

= $2^3 \times 3^2 \times 5$ ✓1

=2Mks

(ii) 90



✓1

= 2x3x3x5

= $2 \times 3^2 \times 5$ ✓1

=2Mks

4 What is the place value and total value of digit 5 in 895040?

Place Value → ten thousands ✓1

Total value → 50,000 ✓1

5 Solve.

$$\frac{1\frac{1}{4} \times 2\frac{1}{2}}{3\frac{1}{2} - 2\frac{1}{4}}$$

Step 1: change into improper fraction

$$\frac{\frac{5}{4} \times \frac{5}{2}}{\frac{7}{2} - \frac{9}{4}}$$ ✓1

Step 2: Work with nominator.

$$\frac{5}{4} \times \frac{5}{2} = \frac{25}{8}$$

Step 3: Work with denominator

$$\frac{7}{2} - \frac{9}{4} = \frac{14 - 9}{4} = \frac{5}{4}$$ ✓1

Step 4: $\frac{25}{8} \div \frac{5}{4}$

$\frac{25}{8} \times \frac{4}{5}$ ✓1

$= \frac{5}{2}$

$= 2\frac{1}{2}$.

$\frac{25}{5} \times \frac{4}{5}$ ✓1

6. Find the L.C.M. of 45, 12, 9

2	45	12	9
2	45	6	9
3	45	3	9
3	15	1	3
5	5	1	1
	1	1	1

✓1

$= 2^2 \times 3^2 \times 5$

$= 4 \times 9 \times 5$

$= 4 \times 45$

$= 180$ ✓1

7 (a) A number is divisible by 9 if the sum of its digits is divisible by 9 ✓1

(b) (i) 712008

Yes [a number is divisible by 2 if its last digit is zero or even] ✓1

(ii) Yes [a number is divisible by 3 if the sum of its digits is divisible by 3] ✓1

(iii) Yes [a number is divisible by 8 if the number formed by its last 3-digits is divisible by 8] ✓1

1(b)(iii) yes [a number is divisible by 9, if the sum of its last 3 digits is divisible by 9]

(v) Yes [a number is divisible by 11 if the sum of its digits in the 1st, 3rd, 5th, 7th etc positions and the sum of its digits in the 2nd, 4th, 6th, 8th etc positions are equal or differ by 11 or by a multiple of 11.]

i.e. 712008

(7+2+0) & (1+0+8)

9 & 9 are equal thus

712008 is divisible by 11.

8(a) $0.\dot{5}\dot{2}\dot{3}$ into fraction

Let $r = 0.523523$

$10r = 5.23523$

$100r = 52.3523$

$1000r = 523.523$

$(1000r - r) = (523 - 0)$

$999r = 523$

$r = \frac{523}{999}$

(b) $0.2\dot{5}\dot{6}$ into fraction

Let $r = 0.256565\ldots$

$10r = 2.565656$

$100r = 25.65656$

$1000r = 256.5656$

$(1000r - 10r) = 256 - 2$

$990r = 254$

$r = \frac{254}{990} \quad \frac{127}{495}$

$r = \frac{127}{495}$

9(a) Find the value of y.

$5\times6 - 76 \div 4 + 27 \div 4 = 20$

We used BODMAS ✓ 1

$30 - 19 + \frac{27}{y} = 20$

$11 + \frac{27}{y} = 20$

$\frac{27}{y} = 20 - 11$

$27 = 9y$

$y = 3$ ✓ 1

(b) $-7 \times 41 + 36 \div y + 12 \times 12 = -139$

$-287 + \frac{36}{y} + 144 = -139$. ✓ 1

$\frac{36}{y} - 143 = -139$

$\frac{36}{y} = -139 + 143$

$y \times \frac{36}{y} = 4 \times y$

$36 = 4y$

$y = 9$ ✓ 1

c) $24 \div 3 + 4 \times 5 - y \div 4 \times 10 + 1 = 9$

$8 + 20 - \frac{10y}{4} + 1 = 9$

$29 - \frac{10y}{4} = 9$

$4 \times -\frac{10y}{4} = -20 \times 4$

$-10y = -80$ $\frac{-10y}{-10} = \frac{-80}{-10}$

$y = 8$ $= 8$

(10) $6 \times 5\,M = 30\,M^2$.

$\frac{1}{20} \times \frac{1}{20} = \frac{1}{400}\,M^2$.

$= 30 \div \frac{1}{400}$

$= 30 \times \frac{400}{1}$

$= 12{,}000$ tiles