LOWER REMOVE MATHS REVISION JANUARY

UNIT A

1. a) Is 57 a prime number? If not, why not?

    b) What is the next prime number after 57?

    c) Are all prime numbers 'odd numbers'?

    d) List all the prime numbers between 30 and 50.

2. Write the following as a product of their prime factors, using indices.

    a) 405

    b) 108

3. Find the HCF and LCM of

    a) 42 and 105

    b) 36 and 48

4. Express 900 as a product of its prime factors, and hence find the square root of it.

5. Work out the next two terms of the following sequences:-

   a) $5, 11, 17, 23,$ _____ , _____

   b) $7, 10, 15, 22,$ _____ , _____

   c) $128, 64, 32, 16,$ _____ , _____

   d) $1, 4, 9, 16, 25,$ _____ , _____

   e) $1, 4, 16, 64,$ _____ , _____

6. Find the 1st, 6th and 100th terms of a sequence if the formula (nth term rule) for the sequence is

	1st term	6th term	100th term
a) $3n + 2$	_____	_____	_____
b) $7n - 5$	_____	_____	_____
c) $n^2 - 3$	_____	_____	_____

UNIT B

1.   Estimate to 1 significant figure, the value of:-

a) 14.17 x 7.0295

b) 52.5 ÷ 12.4

c) 20.4 + 6924 - 1335

2.   Round the following correct to the stated number of decimal places.

a) 4.9378 (2dp)

b) 0.014815 (3dp)

c) 9.954 (1dp)

d) 0.781 (1dp)

e) 12.3895 (3dp)

3.   Round the following correct to the stated number of significant figures.

a) 42 800 (1sf)

b) 684.92 (2sf)

c) 17.993 (2sf)

d) 684.84 (3sf)

e) 0.00867 (1sf)

f) 23.783 (3sf)

4.   Using you calculators, answer the following to 3 sig fig:-

   i) $\sqrt{23}$

   ii) $\dfrac{1}{7}$

   iii) 4Π

   iv) $(34.87 \times 954.1) \div 0.137$

5. $\dfrac{98 \times 3{\cdot}98}{4{\cdot}1 \times 11{\cdot}2}$

   a) Re-write the calculation shown above, giving each number correct to one significant figure.

   b) Evaluate your answer to part a)

6.   a) Writing down all the figures shown on your calculator, work out

                          $\dfrac{28.7 \times 2.59}{15.8 - 14.5}$

   b) Write out your answer to part a) correct to 1 decimal place.

   c) Write out your answer to part a) correct to 1 significant figure

7. a) Writing down all the figures shown on your calculator, work out

$$\frac{536 \times 0.87}{87.6 - 8.9}$$

b) Write out your answer to part a) correct to 4 decimal places.

c) Write out your answer to part a) correct to 1 decimal place.

UNIT C

1. State the general formula for the area and circumference of a circle.
   Explain the relationship between the circumference and the diameter of a circle.
   What is the relationship known as?

2. Find the circumference and area of a circle, whose diameter is 15cm.
   (Give your answer correct to 3 s.f.)

3. My bicycle wheel has a diameter of 5cm.
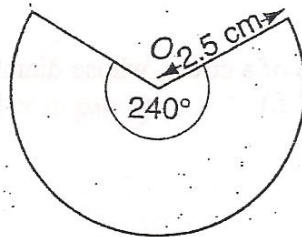
    a) Calculate the circumference of the wheel.

    b) How many complete revolutions will the wheel make in

       i) 100m

       ii) 1 km

4. The diagram shows a sector of a circle of angle 240°.
    The sector has a radius of 2.5 centimetres; O is its centre.

not to scale

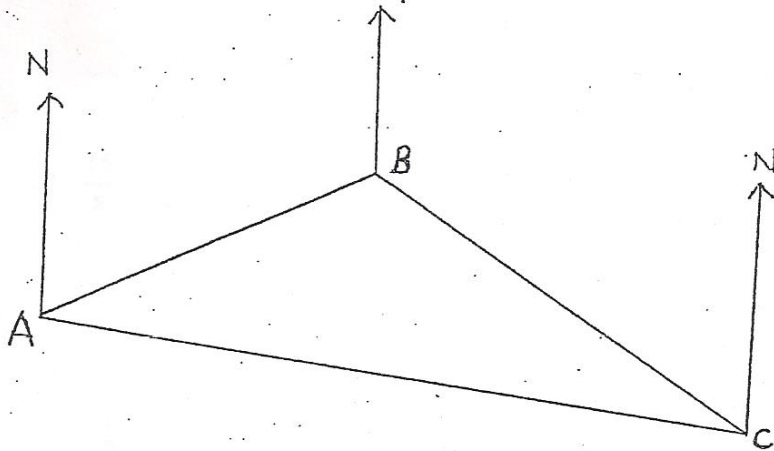i) Find the area of the sector, correct to 3 significant figures.

ii) Calculate the perimeter of the sector, correct to 3 significant figures.

UNIT D

1. Write down the bearings of:-

    a) South

    b) North West

    c) South East

    d) West

    e) North East

2. Measure the bearings below

B from A

C from B

A from C

A from B

B from C

C from A

ANSWER THIS QUESTION IN THE BLANK SPACE BELOW.

3. Rye (R) is 90 km SE of Tonbridge (T). Using a scale of 1cm to 10 km, plot the position of Rye.

Canterbury (C) is 112 km from Tonbridge on a bearing of 080°. Plot the position of Canterbury.

What is the bearing of Rye from Canterbury?

What is the distance of Rye to Canterbury?

UNIT E

Work out the following (DO NOT USE A CALCULATOR)

a) $6.44 \div 7$

b) $47.4 \div 0.4$

c) $14.6 \div 0.25$

d) $\dfrac{15}{8} \div \dfrac{3}{5}$

e) $1\dfrac{2}{3} \div \dfrac{5}{6}$

f) $2\frac{2}{5} \div 1\frac{1}{2}$

g) $5984 \div 17$

h) $9775 \div 23$

i) $1608 \div 24$ (using division by factors)

j) $6804 \div 54$ (using division by factors)

k) $2x^3 \div 3xy^2$

l) $4x^2 \div 8xy^2$

m) $14a^2 \div 21a$

UNIT F

1. Expand the brackets and collect like terms:-

    a) $3(x + 6) - 4(2x - 2)$

    b) $4x - 3(x - 2y)$

    c) $2(3a - 4b) - 3(a + b)$

2. Factorise the following:-

    a) $16x + 4y$

    b) $6a^3 - 2a^2$

    c) $6u^2v + 9u^3v$

    d) $a^2 - 4ac$

UNIT G

Solve the following equations:-

a) $3 - x = 4$

b) $4x + 3 = 10$

c) $13 = 7 - 3x$

d) $\dfrac{3}{4}r = 12$

e) $\dfrac{1}{3}w + 4 = 10$

f) $4(x + 3) = 24$

g) $3a - 7 = 5 - a$

h) $3y + 2 = 7y + 10$

i) $10 - 4z = 22 - 6z$

j) $4(w - 2) = 12 - w$

k) $5x - 20 = 3(x + 6)$