

1.

(a) Write down all the factors of 8.

$$1 \times 8 = 8$$

$$2 \times 4 = 8$$

Answer ..... 1, 2, 4, 8 ..... (2)

(b) Write down any 3 multiples of 8

Answer ..... 8, 16, 24 ..... (2)

(c) The first four square numbers are 1, 4, 9, 16.  
Write down the ninth square number.

$$9^2 = 9 \times 9 = 81$$

Answer ..... 81 ..... (1)

(Total 5 marks)

2. Write down the values of

(a)  $7^2$        $7^2 = 7 \times 7 = 49$

Answer ..... 49 ..... (1)

(b)  $\sqrt{64}$        $8 \times 8 = 64$

Answer ..... 8 ..... (1)

(c)  $4^3$        $4^3 = 4 \times 4 \times 4$

Answer ..... 64 ..... (1)

(d)  $\sqrt[3]{27}$        $3 \times 3 \times 3 = 27$

Answer ..... 3 ..... (1)

(Total 4 marks)

3. Here is a list of numbers.

3    7    12    16    19    30    44

(a) Which number in this list is a multiple of 5?

Answer ..... 30 ..... (1)

(b) Which **three** numbers in this list are factors of 132?

Answer ..... 3 ..... and ..... 12 ..... and ..... 44 ..... (3)

(Total 4 marks)

4. Write down all the common factors of 10 and 15.

Factors of 10  $\rightarrow$  1, 2, 5, 10

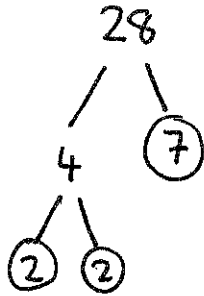
Factors of 15  $\rightarrow$  1, 3, 5, 15

Answer ..... 1 and 5 ..... (2)

(Total 2 marks)

5.

- (a) Write 28 as the product of its prime factors.  
Give your answer in index form.

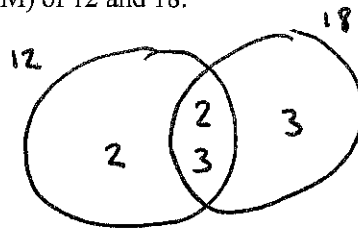
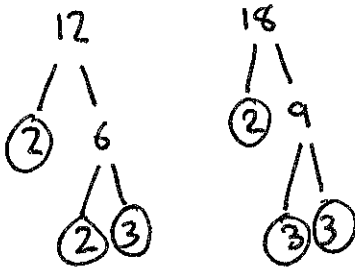


$$28 = 2 \times 2 \times 7$$

$$= 2^2 \times 7$$

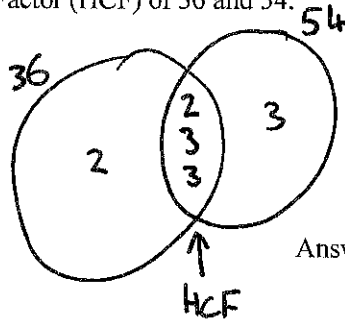
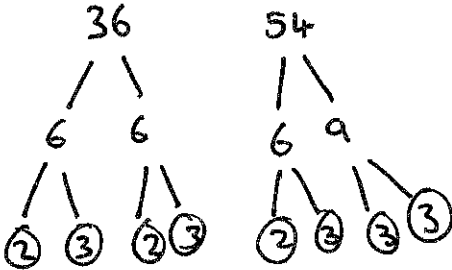
Answer.....  $2^2 \times 7$  ..... (3)

- (b) Find the least common multiple (LCM) of 12 and 18.



Answer.....  $LCM = 2 \times 2 \times 3 \times 3 = 36$  ..... (3)

- (c) Find the Highest Common Factor (HCF) of 36 and 54.

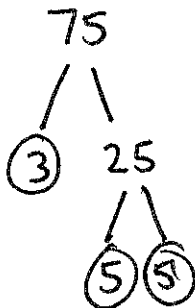


Answer.....  $HCF = 2 \times 3 \times 3 = 18$  ..... (3)

(Total 9 marks)

6.

- (a) Write 75 as the product of its prime factors.  
Give your answer in index form.



$$75 = 3 \times 5 \times 5$$

$$= 3 \times 5^2$$

Answer.....  $3 \times 5^2$  ..... (3)

(b) Tom, Sam and Matt are counting drum beats.

Tom hits a snare drum every 2 beats.  
Sam hits a kettle drum every 5 beats.  
Matt hits a bass drum every 8 beats.

Tom, Sam and Matt start by hitting their drums at the same time.  
How many beats is it before Tom, Sam and Matt **next** hit their drums at the **same** time?

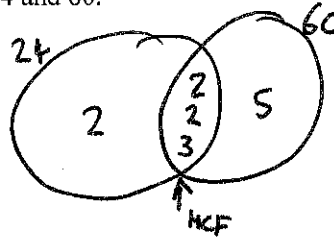
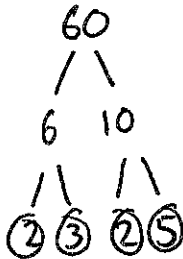
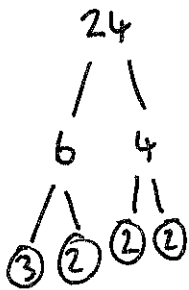
Lowest Common Multiple

- 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, **40** ...
- 5, 10, 15, 20, 25, 30, 35, **40** ...
- 8, 16, 24, 32, **40** ...

Answer ..... **40** beats

(2)

(c) Find the highest common factor of 24 and 60.



Answer HCF = 2 × 2 × 3 = 12 .....

(2)

(Total 7 marks)

7.

A list of numbers is given below.

- 15      16      19      27      34      42      45

From this list, write down

(a) a cube number,

Answer ..... **27** .....  
(1)

(b) a prime number.

Answer ..... **19** .....  
(1)  
(Total 2 marks)

8.

Work out the difference between the two square numbers in this list of numbers.

- 6      11      15      21      27      **36**      48      **64**

$64 - 36 = 28$

Answer ..... **28** .....  
(Total 3 marks)

9. Work out:

(a)  $10^3$       $10^3 = 10 \times 10 \times 10$      Answer ..... 1000 ..... (1)

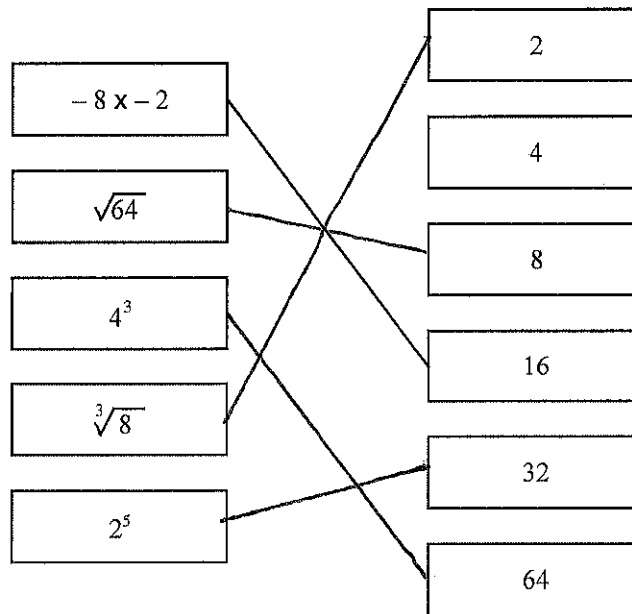
(b)  $5^2 + 2^5$       $5^2 = 5 \times 5$       $2^5 = 2 \times 2 \times 2 \times 2 \times 2$      Answer .....  $25 + 32 = 57$  ..... (1)

(c)  $2^3 - \sqrt{4}$       $2^3 = 2 \times 2 \times 2 = 8$       $\sqrt{4} = 2$      Answer .....  $8 - 2 = 6$  ..... (1)

(d)  $2^3 \times 5^2$       $2^3 = 2 \times 2 \times 2 = 8$       $8 \times 25 = 200$      Answer ..... 200 ..... (1)

(Total 4 marks)

10. Draw lines on the diagram to show which values are equal. One line has been drawn for you.



(Total 3 Marks)

11. Which is larger,  $4^3$  or  $3^4$ ? You **must** show your working.

$4^3 = 4 \times 4 \times 4 = 64$   
 $3^4 = 3 \times 3 \times 3 \times 3 = 81$

Answer .....  $3^4$  ..... (Total 2 marks)

12. Work out the value of  $5^3 - 4^3$ .

$5^3 = 5 \times 5 \times 5 = 125$   
 $4^3 = 4 \times 4 \times 4 = 64$

$125 - 64 = 61$

Answer ..... 61 ..... (Total 2 marks)