

# The Questions

Read the instructions for gaining the security code to the space station carefully.

Make sure you work well as a team.

There are hint sheets available however asking for one of these will cost you points.

Points will be awarded for each question correctly answered, for deciphering the clue and for then cracking the code.

Good luck!

## The Instructions

- Answer each question using your mathematical knowledge.
- Find the answer to the question in the grid on the next page.
- See what letter it corresponds to, look for the question number in the clue and insert the letter for that clue there.
- For example: "Double 11" would give an answer of 22. This corresponds to the letter G, so anywhere in the clue that question number is given I would write a letter G.

- 1) What is  $\frac{7}{9}$  of 72? **56**
- 2) What is  $\frac{3}{8}$  of 24? **9**
- 3) What is the cube root of 64? **4**
- 4) What is the cube root of 8 to the power 4? **16**
- 5) What is 30% of 240? **72**
- 6) If I share 63 in the ratio 2 : 7. How much is the larger share? **49**
- 7) Increase 65 by 20%. **78**
- 8) Decrease 75 by 40% **45**

If  $a = 6$ ,  $b = 2$  and  $c = 4$

- 9) What is  $ab$ ? **12**
- 10) What is  $ab^2$ ? **24**
- 11) What is  $c(a + b)$ ? **32**
- 12) What is  $(ab)^2 - c^3$ ? **80**
- 13) What is  $3abc - a^2c$ ? **0**



- 14) Three of the four angles in a quadrilateral are  $128^\circ$ ,  $63^\circ$  and  $98^\circ$ . What is the missing angle? **71**
- 15) What does each of the interior angles in a regular hexagon equal? **120**
- 16) What is the exterior angle of a regular hexagon? **60**
- 17) Four numbers have a mean of 23. Three of them are 17, 29 and 15. What is the fourth number? **31**
- 18) How many prime numbers are less than 30? Square this number. **100**
- 19) What is the square root of the sum of the first four cube numbers? **10**

# Accessing the Space Station...

A	B	C	D	E	F	G	H	I
72	78	16	60	12	31	22	80	4
J	K	L	M	N	O	P	Q	R
144	1	62	100	32	24	9	6	10
S	T	U	V	W	X	Y	Z	
49	71	45	46	120	56	0	25	

Write the clue here:

(15) **W** (12) **H** (5) **A** (14) **T** / (3) **I** (6) **S** / (14) **T** (12) **H** (9) **E** /

(6) **S** (8) **U** (18) **M** / (10) **O** (17) **F** / (14) **T** (12) **H** (9) **E** /

(6) **S** (9) **E** (4) **C** (10) **O** (11) **N** (16) **D** /

(2) **P** (19) **R** (3) **I** (18) **M** (9) **E** / (11) **N** (8) **U** (18) **M** (7) **B** (9) **E** (19) **R** /

(5) **A** (11) **N** (16) **D** /

(14) **T** (12) **H** (9) **E** / (17) **F** (3) **I** (19) **R** (6) **S** (14) **T** /

(2) **P** (9) **E** (19) **R** (17) **F** (9) **E** (4) **C** (14) **T** /

(11) **N** (8) **U** (18) **M** (7) **B** (9) **E** (19) **R** /

(9) **E** (1) **X** (2) **P** (19) **R** (9) **E** (6) **S** (6) **S** (9) **E** (16) **D** /

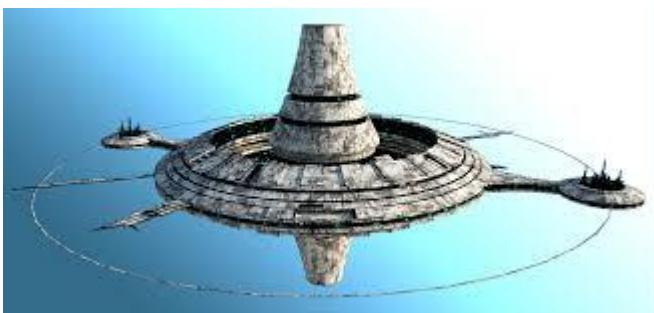
(3) **I** (11) **N** / (7) **B** (3) **I** (11) **N** (5) **A** (19) **R** (13) **Y** ?

Second Prime Number = 3

First Perfect Number = 6

$3 + 6 = 9$

9 in binary = 1001



Enter the security code for the space station below:

1

0

0

1