1) What number is shown on the place value chart?

HTh	TTh	Th	H	T	O
			●● ●	●	●●●●● ●●●●

Complete the sentences:

If I multiply this number by 10, it becomes _____.

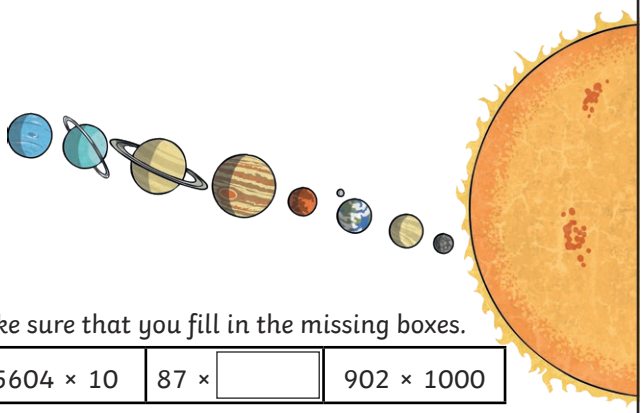
The digits move _____ place to the _____.

If I multiply this number by 100, it becomes _____.

The digits move _____ places to the _____.

If I multiply this number by 1000, it becomes _____.

The digits move _____ places to the _____.



2) Match each planet to its moon to complete the calculation. Make sure that you fill in the missing boxes.

Planets	83 × 100	☐ × 10	612 × ☐	5604 × 10	87 × ☐	902 × 1000

Moons	4030	56 040	8300	87 000	902 000	61 200

1) Javine says, "To multiply by 1000, I just add three zeros."
Kian says, "I times by 10, then times by 10 and times by 10 again."
Do you agree with Javine and Kian's methods for multiplying by 1000? Explain your thinking.

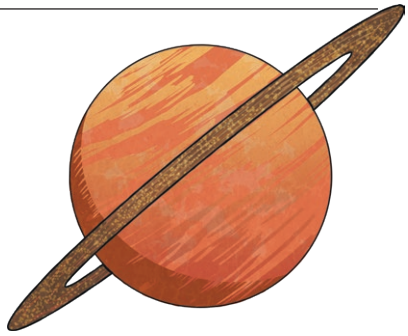
_____

_____

_____

_____

2) Can you work out the diameter of these new planets using the clues below?
Vesta is 10 times bigger than Athena.
Athena has half the diameter of Vulcan.
Juno is 10 times bigger than Athena.
Ceres is 100 times bigger than Vulcan.
Vulcan is 20 530km in diameter.
Apollo is 100 times bigger than Athena.



_____

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_____

_____

3) Alan and Astrid, the astronauts, are exploring the new planet, Vulcan. Alan has travelled 763 steps. Astrid has travelled 10 times more steps than Alan and then walked another 250 steps. How many steps has she travelled?

_____

_____

1) Astrid has discovered a crater a certain number of steps away from the shuttle. The number has 3 digits. She says that, when this number is multiplied by 1000, the hundred thousands and the thousands digits are the same. Also, the product of the number's digits is 16.
How many steps from the shuttle is the crater? Find both possibilities.

2) What could the values of A and B be? Find 3 possible solutions.
A × 100 = B × 1000

3) What could the values of A and B be? Find 3 possible solutions.
A × 1000 = B + 300

1) If I multiply this number by 10, it becomes ***3190***.
The digits move ***one*** place to the ***left***.
If I multiply this number by 100, it becomes ***31 900***.
The digits move ***two*** places to the ***left***.
If I multiply this number by 1000, it becomes ***319 000***.
The digits move ***three*** places to the ***left***.

2)

Planets	83 × 100	***403*** × 10	612 × ***100***	5604 × 10	87 × ***1000***	902 × 1000
Moons	4030	56 040	8300	87 000	902 000	61 200

1) *Javine should have said that the digits move three places to the left. If you are multiplying a decimal number by 1000, for example, 2.5 × 1000, adding three zeros results in 2.5000. If any columns on the right of the digits have become empty, they will need a place holder.*

Kian's method is correct as 10 x 10 x 10 = 1000. It is the same as multiplying by 1000.

2) *Juno – 102 650km, Athena – 10 265km, Ceres – 2 053 000km, Vesta – 102 650km, Apollo – 1 026 500km, Vulcan – 20 530km*

3) *763 x 10 = 7630*
7630 + 250 = 7880
She has travelled 7880 steps.

1) *The crater is either 242 steps or 414 steps away from the shuttle.*

2) *Possible solutions include the following:*
A = 320 B = 32
A = 650 B = 65
A = 850 B = 85
(B should be 10 times bigger than A.)

3) *Possible solutions include the following:*
A = 45 B = 44 700
A = 65 B = 64 700
A = 82 B = 81 700