

29.04.24

Number Nest Weekly Challenge



Warm up

- What digits can a square end number end with? **0, 1, 4, 5, 6, 9**
- What is 1, 570,341 mm in km? **1.570341 km**
- $67,907 \div 100 =$ **679.07**
- Which three square numbers add together to make 142? **$25 + 36 + 81 = 142$**
- Jacky has four coins. Three of the coins add up to 9p. Three of the coins add up to 12p. What coins does Jacky have? **Jacky has two 2p coins and two 5p coins.**
- $3.054 \times 1000 =$ **3054**
- What is 135 miles approximately equal to in km? **216 km**

Activity

- Two princes, Prince Ali and Prince Charming, each have a very small army. The total number in the two armies is fifty soldiers. The number of cavalry soldiers in Prince Charming's army equals the number of ground troops in Prince Ali's army. Prince Ali has two fewer troops in total than Prince Charming and the number of cavalry soldiers in Prince Ali's army is four fewer than the number of cavalry soldiers in Prince Charming's army. How many cavalry soldiers and ground troops does each army have?



Prince Ali has 2 fewer troops in total than Prince Charming, so

Prince Ali = 24 and Prince Charming = 26

Prince Ali has 4 less cavalry troops than Prince Charming, but Prince Ali has the same number of cavalry soldiers as Prince Charming has ground troops. Therefore Prince Ali has 4 fewer cavalry soldiers than ground troops. Prince Ali's total is 24, so he has 10 cavalry soldiers and 14 ground troops.

Prince Charming has 14 cavalry soldiers and therefore he has $26 - 14 = 12$ ground troops.

- Deep down in the sea there is a community of ocean-dwellers named the Bubblefolk comprised of seahorses, mermaids and octopuses. If we count the tentacles of an octopus as arms, the group had 50 arms, 40 eyes and 16 tails. How many of each are in the group?

Altogether there are 40 eyes = 20 in the community.

Octopuses don't have tails, 16 tails = mermaids and seahorses.

No. of octopuses = $(20 - 16) = 4$.

Octopus no. of arms = $8 \times 4 = 32$

Mermaid no. of arms = $50 - 32 = 18$

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No. of mermaids = 9

No. of seahorses = $20 - 9 - 4 = 7$

Puzzle

This magic square adds up to nothing. Put the numbers below into the square so that each row, column and diagonal adds up to zero.

Numbers

-4, -3, -2, -1, 0, 1, 2, 3, 4

-3	2	1
4	0	-4
-1	-2	3

-1	-2	3
4	0	-4
-3	2	1

1	-4	3
2	0	-2
-3	4	-1

or

3	-4	1
-2	0	2
-1	4	-3