GUESS & CHECK

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Some problems can be solved by repeatedly guessing
answers and checking them until you have found a solution.

Look at this example.

I am thinking of two whole numbers.
When I add them together my answer is 118.
When I subtract the smaller number from the
larger number my answer is 36.
What are my two numbers ?

Make a smart guess by choosing two numbers that add up to 118.

First guess	100 and 18	
Check	100 - 18 = 82	✗
Think	82 is too big so I need two numbers closer together.	
Second guess	90 and 28	
Check	90 - 28 = 36	✗
Think	Still too big.	
Third guess	80 and 38	
Check	80 - 38 = 42	✗
Think	Still too big.	
Fourth Guess	70 and 48	
Check	70 - 48 = 32	✗
Think	Too small.	
Fifth Guess	77 and 41	
Check	77 - 41 = 36	✔
Think	Hurrah !	

Guess and Check Problems

1   I am thinking of two whole numbers.
When I add them together my answer is 40.
When I subtract the smaller number from the
larger number my answer is 8.
What are my two numbers ?

2   A Maths book is lying open on a desk.
The product of the facing pages is 8556.
What pages is the book open at ?

3   I am thinking of two whole numbers.
When I add them together my answer is 131.
When I subtract the smaller number from the
larger number my answer is 27.
What are my two numbers ?

4   The Watts raise dogs and birds.
They counted all the heads and got 10.
They counted all the f
How many birds did

Number Crosses

Rule :-   The numbers across the way add up to the
           same total as the numbers down the way.

Example

```
      9
  5   4   7
      3
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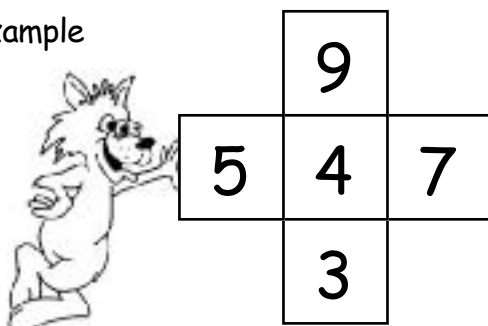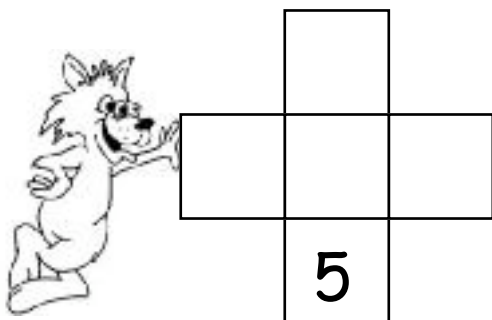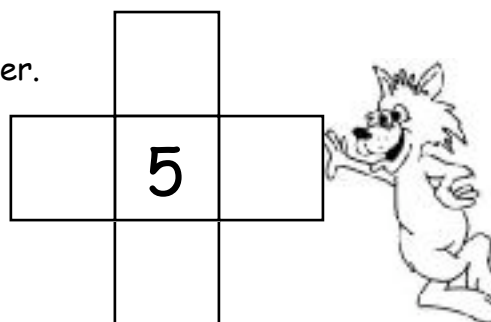
Across   5 + 4 + 7 = 16

Down   9 + 4 + 3 = 16

1   Copy the number cross opposite into your jotter.

    Use the numbers 7 , 9 , 14 and 16 to complete
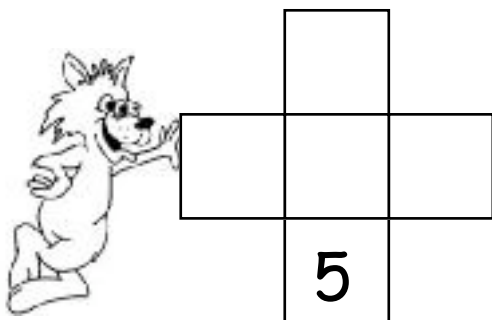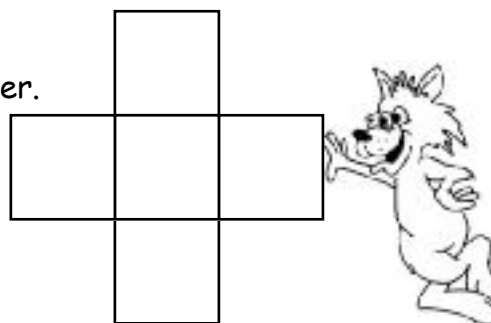   the number cross so that the totals are 28.

```
          5
```

2   Copy the number cross opposite
    into your jotter.

    Use the numbers 6 , 7 , 8 and 10 to
    complete the number cross so that
    the totals are 23.

```
      5
```

3   Copy the number cross opposite into your jotter.

    Use the numbers 1 , 2 , 3 , 4 and 5 to
    complete the number cross so that the
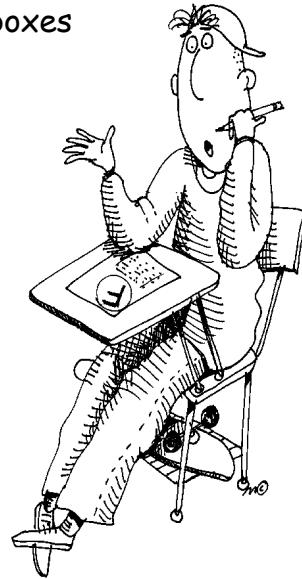   totals are the same in each direction.

4   Make another different cross using
    the numbers 1 , 2 , 3 , 4 and 5 so
    that the totals are the same in
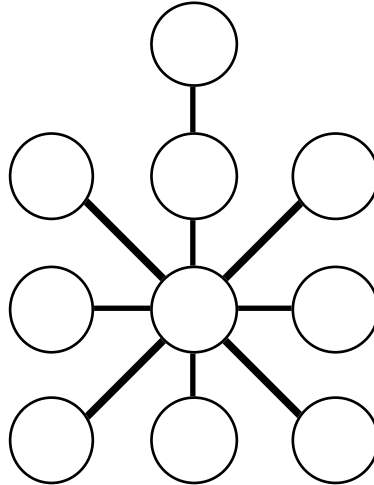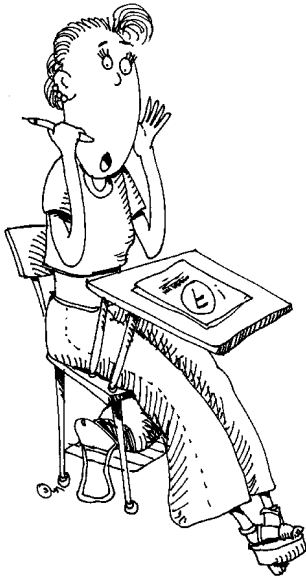   each direction.

```
      5
```

Nought to Nine 1

Copy the diagram below into your jotter.
Arrange the digits 0 to 9 in the boxes
so that the sum is correct.

$$\begin{array}{r} \square\ 5\ \square\ \square \\ +\ \square\ \square\ \square\ 5 \\ \hline \square\ \square\ 6\ \square\ \square \end{array}$$

Nought to Nine 2

Copy the diagram below into your jotter.
Arrange the digits 0 to 9 in the circles
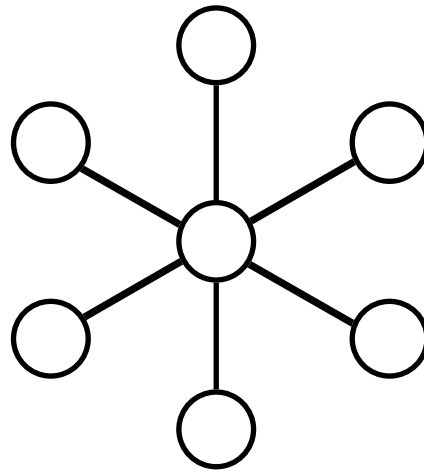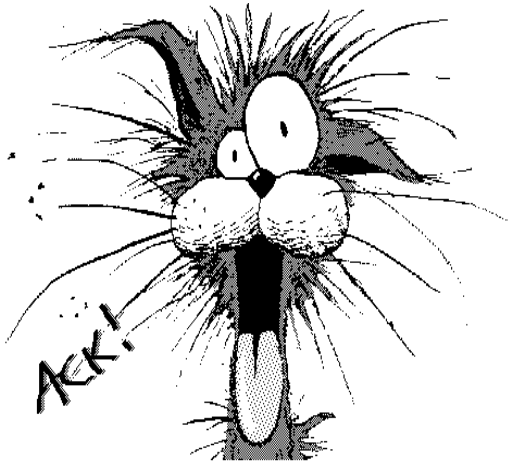· each connected line adds up to 15.

Nought to Nine 3

Copy the diagram below into your jotter.
Arrange the digits 0 to 9 in the boxes
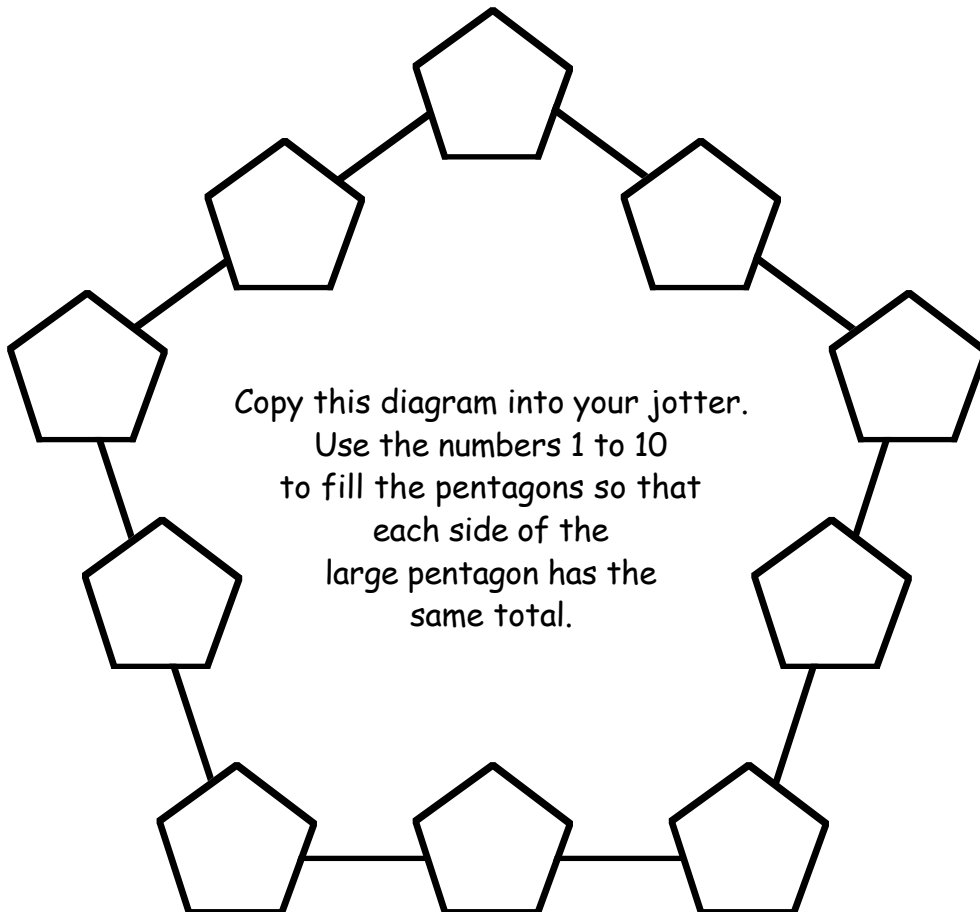so that the sum is correct.

$$\square + \square + \square + \square + \square + \square + \square + \square = \square\ \square$$

Round the Bend

Copy the diagram below into your jotter.
Use the first 7 odd numbers to fill the circles so that each row totals 21.

Pentaproblem

Copy this diagram into your jotter.
Use the numbers 1 to 10
to fill the pentagons so that
each side of the
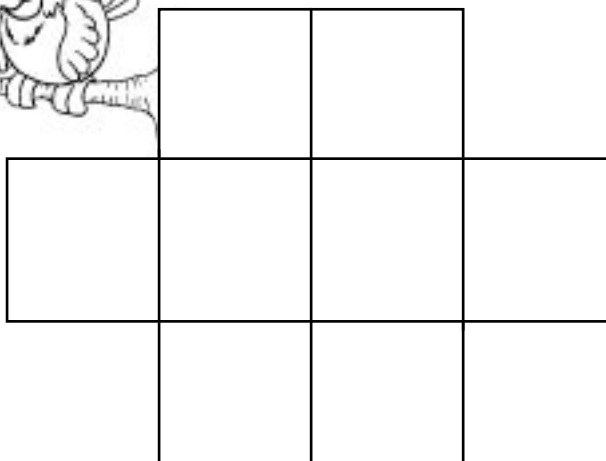large pentagon has the
same total.

Can you find four different solutions ?

The Only Magic Hexagon

Copy the diagram below into your jotter.
Fill in the hexagons with the numbers 1 , 2 , 3 , . . . , 19
so that the total of the numbers on every vertical path
and on every diagonal path is always the same.
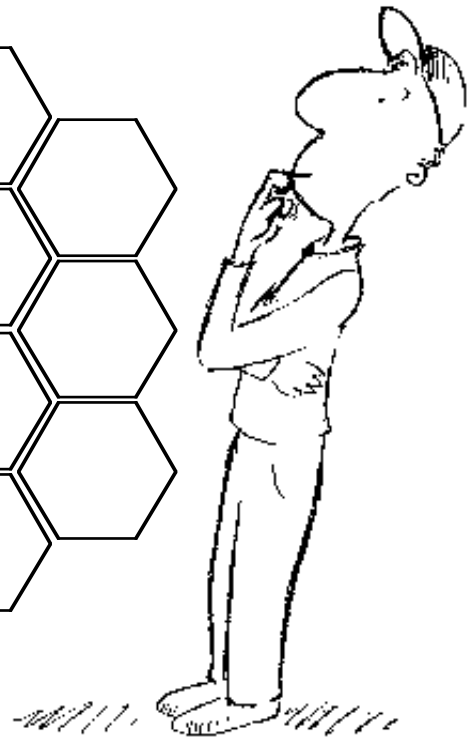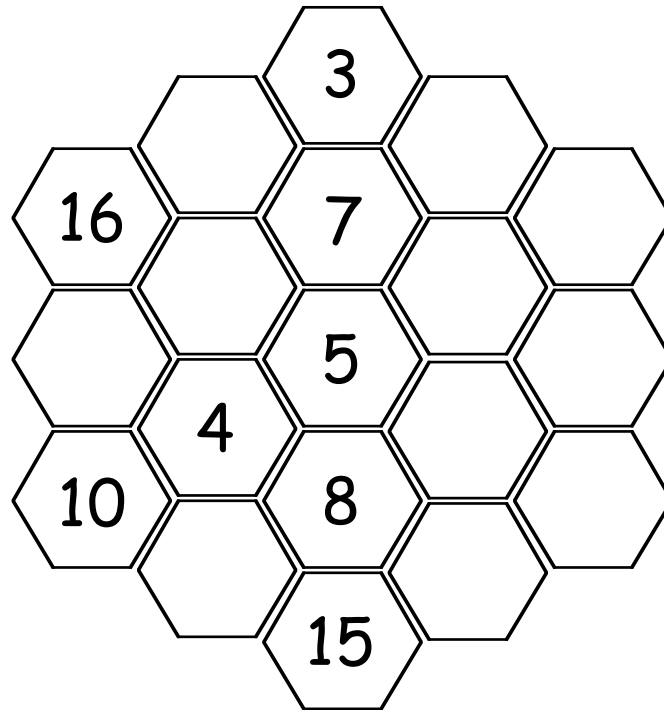
Consecutive Ban

Copy the diagram opposite
into your jotter.
Fill in the boxes with
the digits 1 , 2 , 3 , . . . , 8
so that no two consecutive
digits are in touching boxes.

Dotty Maths

In these sums, some of the numbers have been carelessly dotted out.
Discover what they should be.

```
   ● 2 ●              3 ●                ● 2 ●
     x 7            -  ● 9           8 | ● 9 ●
  ─────────         ─────────
  1 ● 7 ●               9
  ─────────         ─────────
```

Mystery Number

Find the mystery number.

Clue 1 :- The units digit is half of the tens digit.
Clue 2 :- The tens digit is half of the hundreds digit.
Clue 3 :- The product of the three digits is 64.
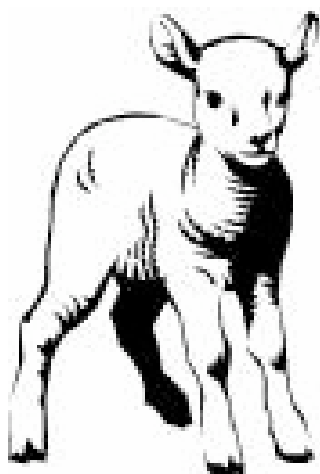
Baaachook

Lambs have only two
toes on each foot.

Chickens have five
toes on each foot.

a)   Nadia keeps both lambs and chickens. If she counts all the heads,
      there are 12 heads. If she counts all the toes there are 106 toes.
      How many sheep does she keep ?

b)   Billy also keeps both lambs and chickens. If he counts all the heads,
      there are 20 heads. If he counts all the toes there are 174 toes.
      How many sheep does he keep ?