

SMILE WORKCARDS

Multiplication Pack Three

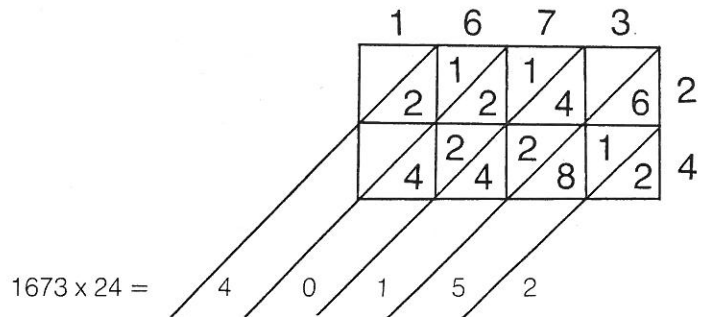
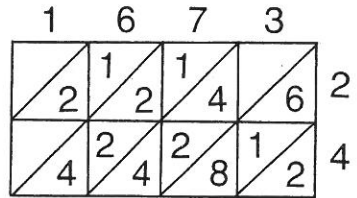
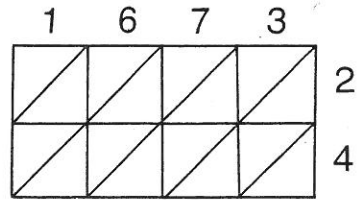
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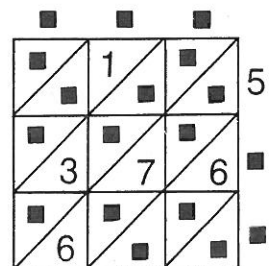
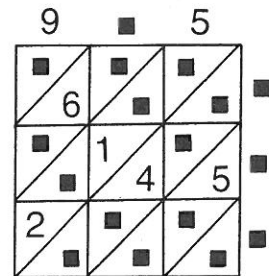
Gelosia Problems

Gelosia can be used to do long multiplication problems. The method is described on card 0174, but the following steps may be enough to remind you.

1673 x 24



Can you find the missing numbers in the two multiplications below?

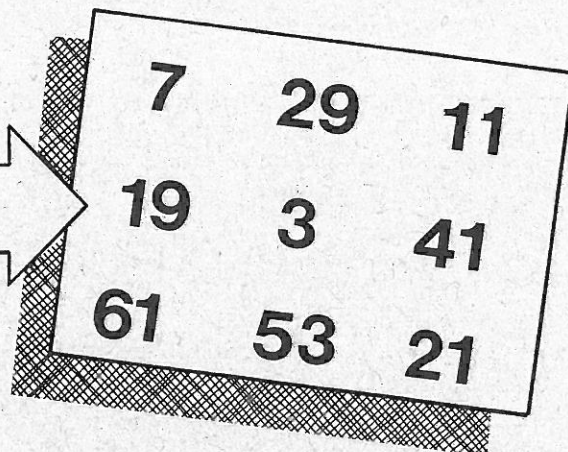


Closest product

A game for two players

1. Take turns to pick two numbers from the list. Multiply the numbers on your calculator.

These are your choices:



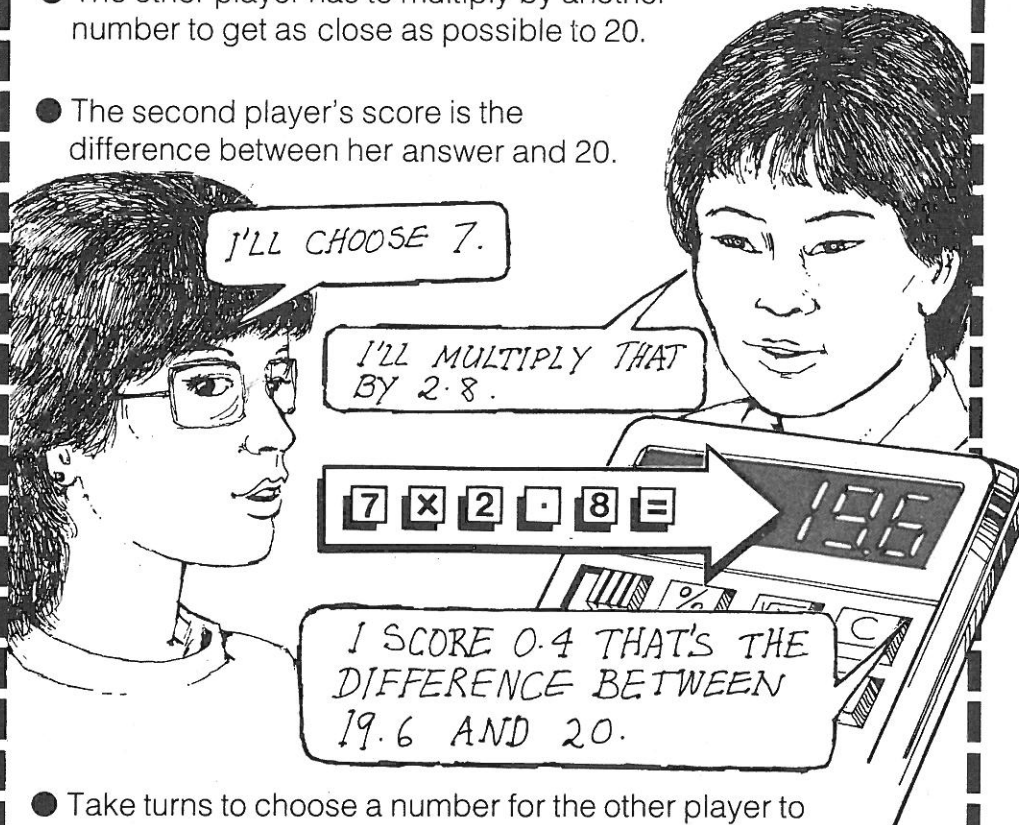
2. Cover the product on the board below with a counter.
3. First player with four-in-a-line wins.

427	1113	87	671	231	63
779	133	1007	203	609	1281
57	209	1537	2173	123	551
399	1189	2501	1769	451	77
319	147	159	3233	861	183
21	583	287	1159	33	371

The Game of 20

A GAME FOR 2 PLAYERS WITH A CALCULATOR

- One player chooses a number between 1 and 10.
- The other player has to multiply by another number to get as close as possible to 20.
- The second player's score is the difference between her answer and 20.



- Take turns to choose a number for the other player to multiply.
- Add up the scores. The player who has the lower score wins.

Multiplication Review

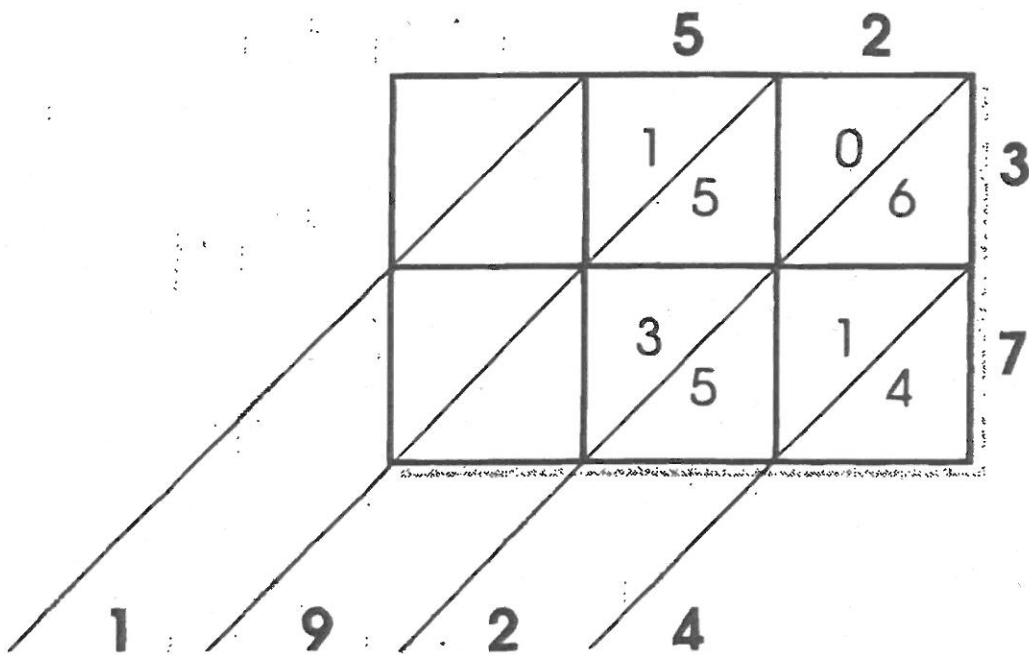
An activity for 2 or more people

In this pack there are five methods of multiplication.

For each one:

1. Look at the method of multiplication.
2. Describe what was done.
3. Check that the method works by trying it out on 27×69 .
4. Try to work out why the method works.

$$52 \times 37 = ?$$



1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27×69 .
4. Try to work out why the method works.

$$52 \times 37 = ?$$

	50	2
30	1500	60
7	350	14

$$1500 + 350 + 60 + 14 = 1924$$

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27×69 .
4. Try to work out why the method works.



$$52 \times 37 = ?$$

$$52 \times 10 = 520$$

$$52 \times 20 = 1040$$

$$52 \times 40 = 2080$$

$$52 \times 3 = 156$$

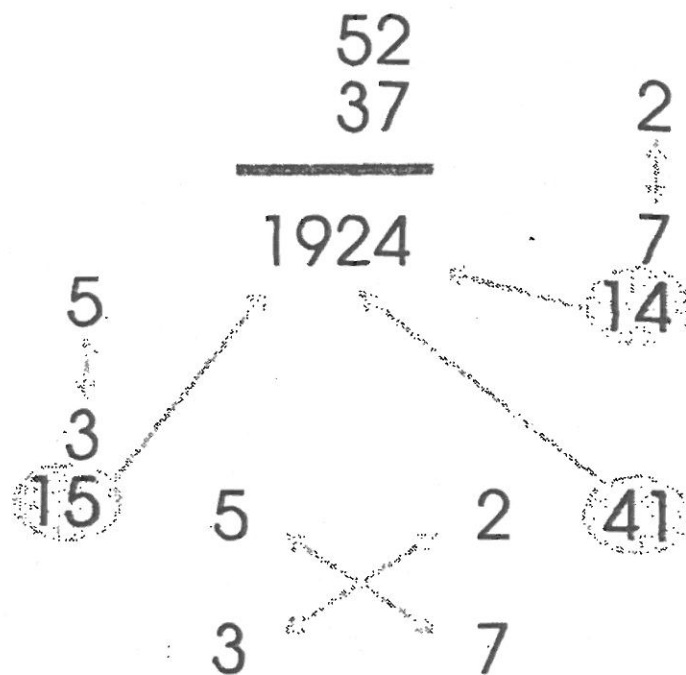
$$52 \times 37 = 1924$$

1. Look at this method of multiplication.
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$$52 \times 37 = ?$$



1. Look at this method of multiplication.
2. Describe what was done.
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$$52 \times 37 = ?$$

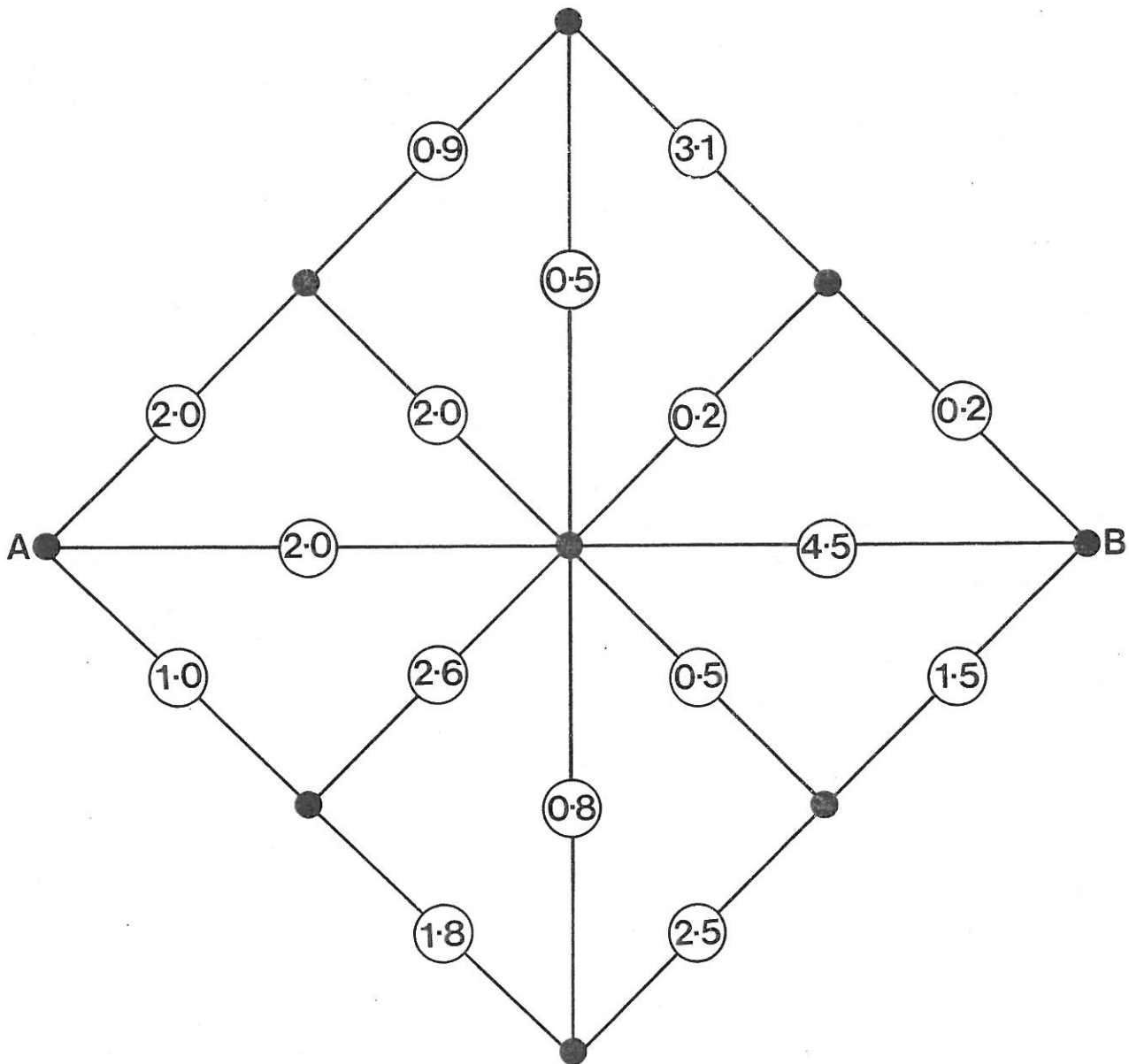
52	37
26	74
13	148
6	296
3	592
1	1184
	1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27×69 .
4. Try to work out why the method works.

Calcumaze

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– a game with a calculator



The object of the game is to find routes from **A** to **B**. You score high marks for a very large product or a very small one.

Players take turns to find a route, write down the numbers and calculate the product.
e.g. $1.0 \times 2.6 \times 0.2 \times 0.2 = 0.104$ which scores 5 points.

Each route must be different and no route can pass through a point more than once.

Scores

Less than 0.1	10 points
Between 0.1 and 1	5 points
Between 1 and 10	2 points
Between 10 and 20	5 points
More than 20	10 points

Spreadsheet Squares

Enter the numbers 1 to 9 in a 3 x 3 grid on a spreadsheet.

	A	B	C	D	E	F
1	1	2	3			
2	4	5	6			
3	7	8	9			
4						
5						
6						
7						
8						
9						

Then enter the formula $=A1*B1*C1$ into cell **E1**.

This formula multiplies the numbers in cells A1, B1 and C1.

Enter a formula in cell **E3** to multiply the numbers in cells **A3**, **B3** and **C3**.

Enter a formula in cell **A5** to multiply the numbers in cells **A1**, **A2** and **A3**.

Enter a formula in cell **C5** to multiply the numbers in cells **C1**, **C2** and **C3**.

Enter a formula in cell **E5** to **add** the four multiplications.

Change the order of the numbers 1 to 9 to make the total in **E5** . . .

. . . as *small* as possible,

. . . as *large* as possible.

Record you results. What do you notice?

Try the numbers 1 to 16 in a 4 x 4 grid.

RUSSIAN MULTIPLICATION

Look at this method for multiplying

49 by 423

and

52 by 376.

$$\begin{array}{r}
 49 \times 423 \\
 \hline
 24 \times 846 \\
 \hline
 12 \times 1692 \\
 \hline
 6 \times 3384 \\
 \hline
 3 \times 6768 \\
 \hline
 1 \times 13536 \quad + \\
 \hline
 20727
 \end{array}$$

$$\begin{array}{r}
 \cancel{52} \times \cancel{376} \\
 \hline
 \cancel{26} \times \cancel{752} \\
 \hline
 13 \times 1504 \\
 \hline
 6 \times 3008 \\
 \hline
 3 \times 6016 \\
 \hline
 1 \times 12032 \quad + \\
 \hline
 19552
 \end{array}$$

Use the same method to multiply other pairs of numbers.

Can you find a "Russian Multiplication" where all but one pair of numbers is crossed out?

How about one where all the numbers are crossed out?

Product of primes

It will be useful to work with someone else.

1. Find two whole numbers bigger than 1 that multiply together to make...

- (a) 39
- (b) 95
- (c) 187
- (d) 247

And the big challenge...

- (e) 27641

2. Find a number bigger than 27641 that is the product of two primes.