

## Ordering and rounding

Here are some examples of activities, games or puzzles which can be used to support mathematics learning.

These examples are taken from the ordering and rounding pack. The mathematical demand increases as you work through the pack. The complete packs can be downloaded at <https://www.stem.org.uk/rxzdx>

Answers to cards can be found at <https://www.stem.org.uk/rxxo5>

You will need a calculator

Smile 1423

### Calculator Guesses

$16 \times ? = 304$

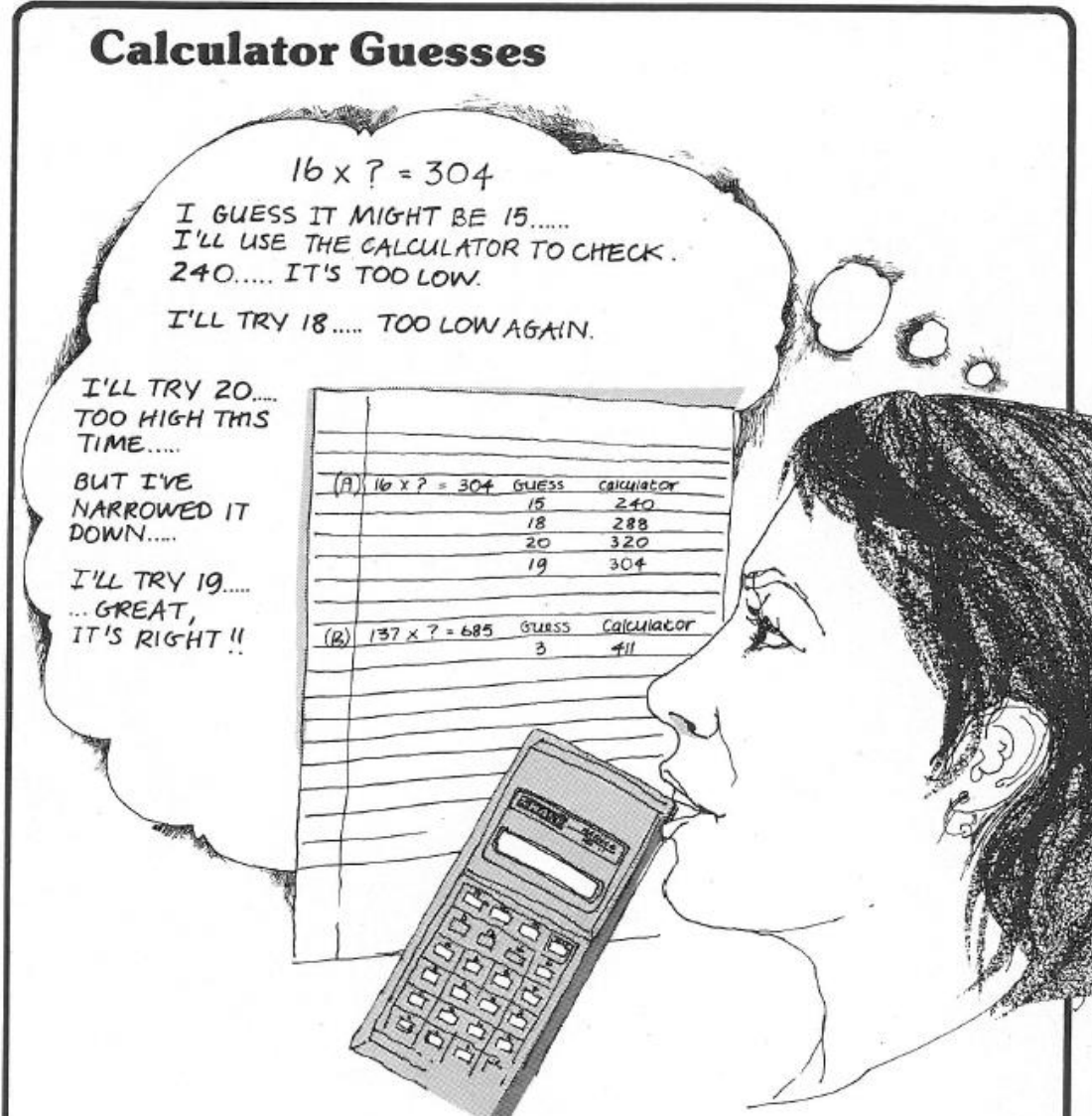
I GUESS IT MIGHT BE 15.....  
I'LL USE THE CALCULATOR TO CHECK.  
240..... IT'S TOO LOW.  
I'LL TRY 18..... TOO LOW AGAIN.

I'LL TRY 20.....  
TOO HIGH THIS  
TIME.....  
BUT I'VE  
NARROWED IT  
DOWN.....  
I'LL TRY 19.....  
... GREAT,  
IT'S RIGHT !!

(A)	$16 \times ? = 304$	GUESS	calculator
		15	240
		18	288
		20	320
		19	304

(B)	$137 \times ? = 685$	GUESS	calculator
		3	411



Try these:

- $137 \times ? = 685$
- $? \times 21 = 147$
- $19 \times ? = 247$
- $? \times 23 = 529$
- $24 \times ? = 384$
- $? \times 46 = 966$
- $4956 = 354 \times ?$
- $? \times 214 = 2568$
- $25 \times ? = 625$
- $25 \times ? = 6250$

## Higher decimal win

Smile 2365

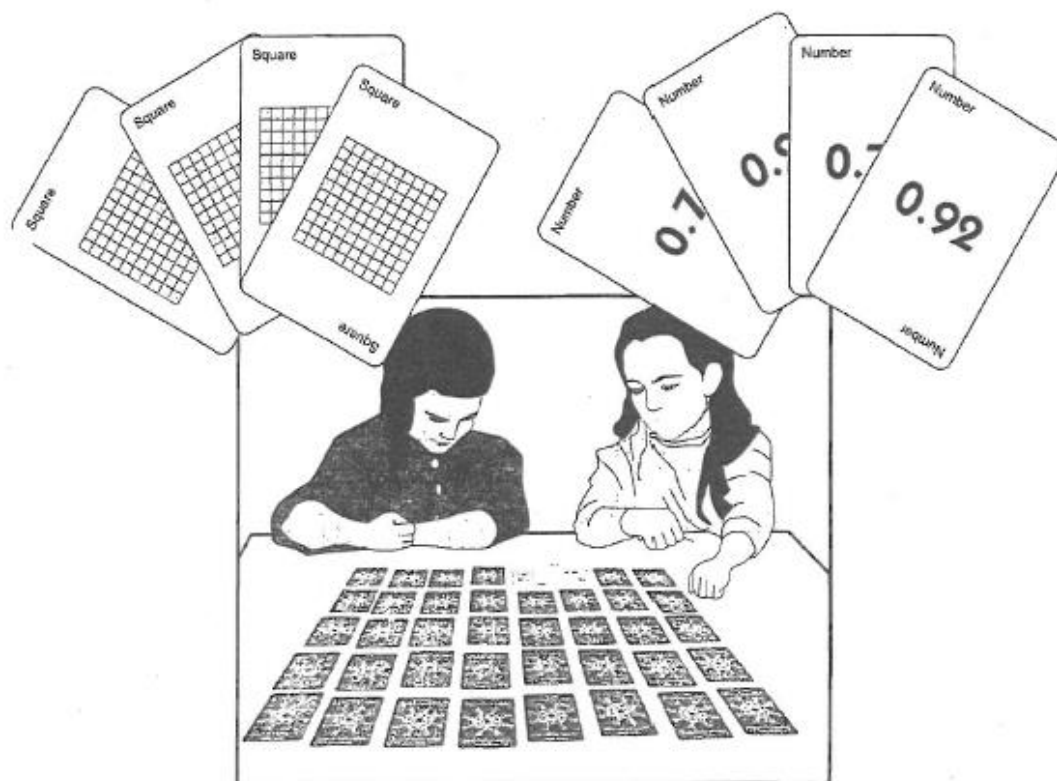
A game for 2 players.

You will need the SMILE Decimal Playing Cards.

Take out the 13 cards with 'Squares' and the 13 cards with 'Numbers'.

Shuffle the cards.

Deal the cards, face down, in front of you.



Each player turns over one card.

The player with the higher decimal wins that round and keeps both cards.

Carry on until you have used all the cards.

The player with the most cards wins.

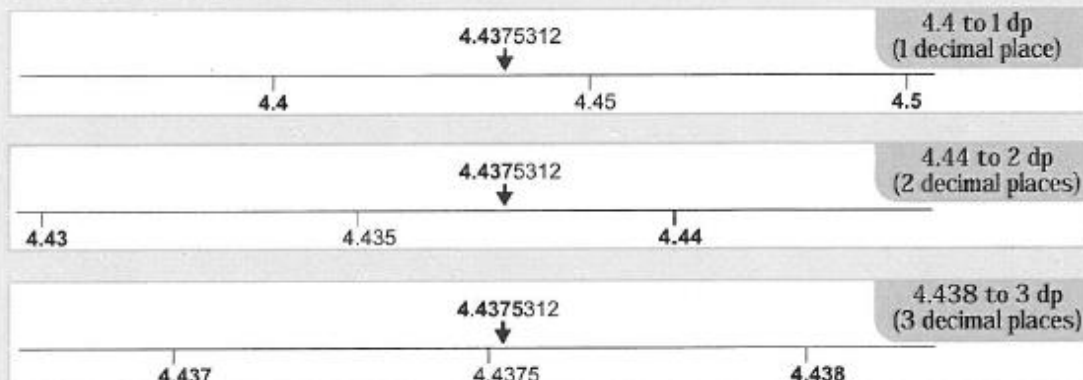
### Variation

Try turning over 2 cards at a time, adding the two numbers together. The player with the higher decimal wins.

# Decimal Places Match

The number on the calculator shows  
This can be approximated to:

4.4375312

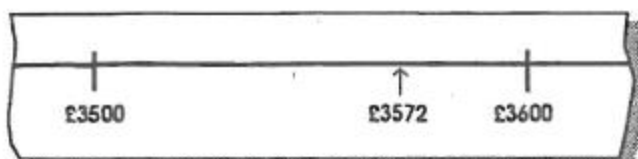


Match each calculator answer to its three approximations.

Number on calculator 3.4457982	Number to 2 decimal places 3.45 to 2 dp	Number to 1 decimal place 3.6 to 1 dp	Number to 3 decimal places 3.456 to 3 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.557 to 3 dp	Number on calculator 3.5471035	Number to 2 decimal places 3.47 to 2 dp
Number to 2 decimal places 3.46 to 2 dp	Number on calculator 3.4561207	Number to 3 decimal places 3.547 to 3 dp	Number to 1 decimal place 3.4 to 1 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.446 to 3 dp	Number on calculator 3.5568156	Number to 2 decimal places 3.56 to 2 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.467 to 3 dp	Number to 2 decimal places 3.55 to 2 dp	Number on calculator 3.4672331

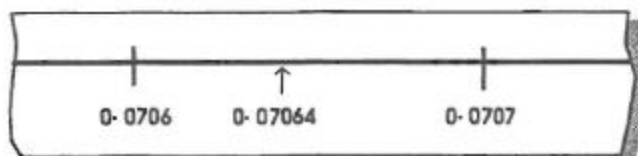
## Significant Figures

Smile 1202



£3572 is closer to £3600 than £3500

so £3572 = £3600 (to 2 significant figures).

0.07064 is between 0.0706 and 0.0707  
and is closer to 0.0706.

0.07064 = 0.0706 (to 3 sig.fig.)

**Note** The first significant figure is the first non-zero digit. After the first significant figure, all figures are significant figures.

- A** The following answers were found using a calculator.  
Write each of the answers (a) correct to 2 significant figures  
(b) correct to 3 significant figures.

Putting your answers in a table like this may help.

		(a) 2 significant figures	(b) 3 significant figures
1.	49.7327 cm <sup>2</sup>	50 cm <sup>2</sup>	49.7 cm <sup>2</sup>

- |                            |                            |                           |
|----------------------------|----------------------------|---------------------------|
| 1. 49.7327 cm <sup>2</sup> | 6. 8.937 kg                | 11. 40.96 kg              |
| 2. £283 721                | 7. 10.785 m                | 12. 20.81 litres          |
| 3. 7.8241 cm               | 8. £37 694                 | 13. 0.9008 km             |
| 4. 0.06736 m               | 9. 40.038 cm <sup>3</sup>  | 14. 5.942 m               |
| 5. 0.0004842               | 10. 0.70683 m <sup>2</sup> | 15. 10.94 cm <sup>2</sup> |

- B** Some fractions and their equivalent decimal values are given below.

Write each decimal correct to 3 significant figures.

- |                                 |  |
|---------------------------------|--|
| 1. $\frac{2}{3} = 0.\dot{6}$    | 6. $\frac{5}{7} = 0.\dot{7}1428\dot{5}$  |
| 2. $\frac{5}{6} = 0.8\dot{3}$   | 7. $\frac{11}{12} = 0.91\dot{6}$         |
| 3. $\frac{5}{11} = 0.4\dot{5}$  | 8. $\frac{7}{13} = 0.\dot{5}3846\dot{1}$ |
| 4. $\frac{7}{80} = 0.0875$      | 9. $\frac{5}{13} = 0.\dot{3}8461\dot{5}$ |
| 5. $\frac{5}{12} = 0.41\dot{6}$ | 10. $\frac{1}{7} = 0.\dot{1}4285\dot{7}$ |

**Note** The dot above a figure shows that the figure recurs. e.g.

$$0.8\dot{3} = 0.8333\dots$$

Two dots show that the figures between the dots recur. e.g.

$$0.8\dot{3}\dot{5} = 0.835835835\dots$$