Multiplication and Division

Knowledge Organiser

Key Vocabulary

- multiply/times
- groups/lots of
- divide
- share
- remainder
- factor
- multiple
- product
- prime number
- composite number
- squared
- cubed
- difference
- partition
- estimate

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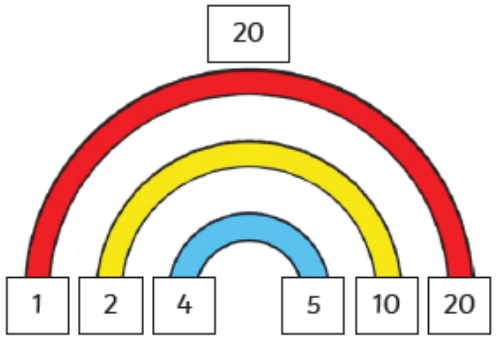
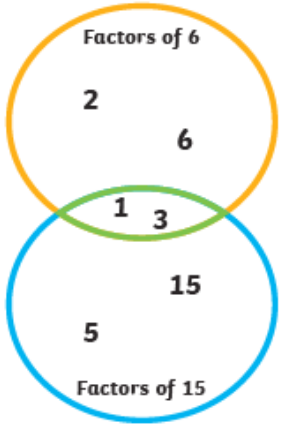
Factors

A factor is a number that divides into another number exactly, without leaving a remainder.



A common factor is a factor of 2 or more numbers.



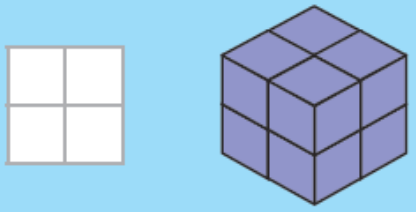
The factors of 20 are 1, 2, 4, 5, 10 and 20.

The factor pairs are:
1 and 20
2 and 10
4 and 5

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Squared² and Cubed³ Numbers

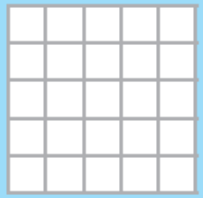


$2^2 = 4$

$2 \times 2 = 4$

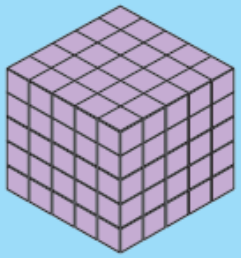
$2^3 = 8$

$2 \times 2 \times 2 = 8$



$5^2 = 25$

$5 \times 5 = 25$



$5^3 = 125$

$5 \times 5 \times 5 = 125$

Related Calculations

$8 \times 9 = 72$

$80 \times 9 = 720$

$9 \times 8 = 72$

$90 \times 8 = 720$

$72 \div 9 = 8$

$720 \div 9 = 80$

$72 \div 8 = 9$

$720 \div 8 = 90$

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Short Multiplication

$$2543 \times 7 = 17\,801$$

		3 2	3 5	2 4	3
	x				7
	1	7	8	0	1

Remember to move any renamed digits into the next column. After the next multiplication, add the renamed number to the answer.

Long Multiplication

$$2543 \times 67 = 170\,381$$

			3 2 1			
			3 3 2	2 5	4	3
		x			6	7
		1	7	8	0	1
+	1	5	2	5	8	0
	1	7	0	3	8	1

Before multiplying by the number in the tens column, remember to use zero as a placeholder because the 6 in 67 is 6 tens (60).

Division

$$136 \div 4 = 34$$

		3	4
4	1	3	6
	− 1	2	→ 30 × 4
		1	6
	−	1	6 → 4 × 4
			0

Short Division

		3	8
4	1	1 5	3 2

15 ÷ 4 = 3 remainder 3

Remember to regroup any remainders and move them into the next column.

		4	5	5	r	3
5	2	2	2 7	2 8		

28 ÷ 5 = 5 remainder 3

If your calculation has a remainder, remember to record it in the answer using the letter r.