

# Year 7

## Multiplication Examples

Date:

Title: Multiplication

LO: We will be able to look for patterns when multiplying.

LLO: We will confidently explain our answers

**a** Work out

i  $2 \times 3 \times 4 = 24$     ii  $2 \times 4 \times 3 = 24$     iii  $3 \times 2 \times 4 = 24$

iv  $\underset{2 \times 3}{6} \times 4 = 24$     v  $\underset{2 \times 4}{8} \times 3 = 24$

**b** What do you notice about your answers to part **a**?

**Discussion** Does changing the order of the multiplication change your answer? Can you split numbers to multiply them?

What is multiplication?

Addition

$$3 + 3 + 3 + 3 + 3$$

$$3 \times 5$$

$$122 \times 9$$

$$122 \times 10 = 1220$$
$$\begin{array}{r} 1220 \\ - 122 \\ \hline \end{array}$$

$$122 \times 11$$

$$122 \times 10 = 1220$$
$$\begin{array}{r} 1220 \\ + 122 \\ \hline \end{array}$$

$$122 \times 5$$

$$122 \times 10 = 1220$$

$$\frac{1220}{2} = 610$$

$\times 5 \rightarrow$  Multiply by 10  
then divide by 2.

$\times 9 \rightarrow$  Multiply by 10  
and subtract once

$\times 11 \rightarrow$  Multiply by 10  
and add one more.

$$13 \times 9$$

$$99 \times 54$$

$$589 \times 5$$

$$44 \times 13$$

$$32 \times 11$$

Date:

Title: Number Work

LO: We will be able to: 1) Recap what we know about BIDMAS.

2)  $+-\div\times$  Negative numbers.

3) Complete long multiplication problem questions.

LLO: We will be able to articulate what they have learnt in the lesson.

S.A.



Test: A) Use BIDMAS to find the answer

1)  $(3 + 4) \times 3 - 6$

2)  $32 \div 8 - 3$

3)  $6 + 4 \times 6$

4)  $8 \times 3 + (5 - 1)$

5)  $24 \div 3 + 6 \times 2$

B) Negative numbers - find the answers

1)  $-9 + 2$

2)  $-10 + -2$

3)  $-14 - -8$

4)  $9 - -5$

5)  $24 + -4$

1)  $99 \times 17$   
 $= 100 \times 17 - 17$   
 $= 1700 - 17$   
 $= 1683$

2)  $5 \times 32$   
 $= \frac{32 \times 10}{2}$   
 $= \frac{320}{2} = 160$

3)  $11 \times 18$   
 $= 10 \times 18 + 18$   
 $= 180 + 18$   
 $= 198$

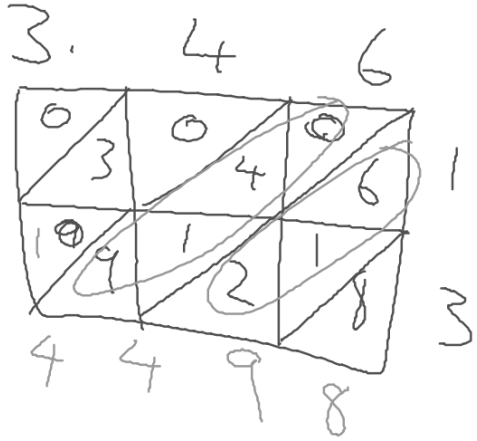
4)  $120 \times 19$   
 $120 \times 20 = 2400$   
 $2400 - 120 = 2280$

$19 \times 100 = 1900$   
 $19 \times 20 = 380$   
2280

5)  $160 \div 5$   
 $160 \div 10 = 16$   
 $16 \times 2 = 32$

### Examples

1)  $346 \times 13$



### Long Multiplication

2)  $48.5 \times 2.3 = 111.55$  3)  $6.8 \times 18$

$485 \times 23$

$11155$

①  $7.23 \times 1.9$

②  $340 \div 8$

### Questions

1)  $353 \times 76$

9)  $3.5 \times 9.2$

2)  $753 \times 34$

10)  $7.8 \times 3.45$

3)  $842 \times 85$

11)  $9.73 \times 4.5$

4)  $532 \times 21$

12)  $7.54 \times 4.9$

5)  $923 \times 412$

13)  $9.4 \times 24$

6)  $628 \times 456$

14)  $13.5 \times 13$

7)  $404 \times 872$

15)  $7.61 \times 45$

8)  $594 \times 416$

16)  $9.32 \times 25$

Date:

Title: **Factors, multiples and primes**

LO: **To be able to recognise factors and multiples**

LLO: *To read questions carefully to make sure we use the correct operation.*

1 Write the first five multiples of 7.

2 True or false?

a 36 is a multiple of 9

b 3 is a factor of 13

c 23 is a multiple of 8

d 6 is a factor of 18

Look at these numbers:

2, 3, 4, 6, 8, 9, 10, 12, 14, 15, 16, 18.

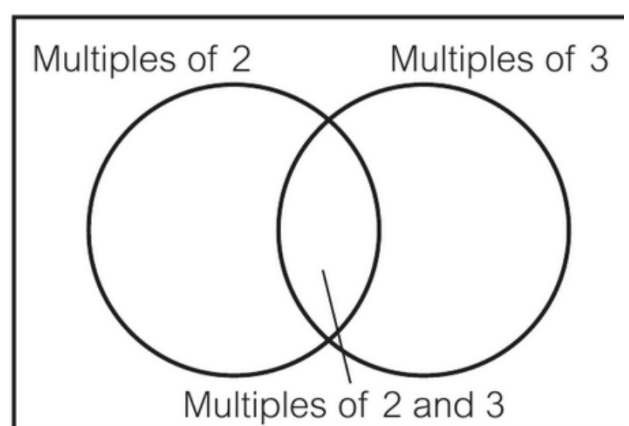
a Which of the numbers are multiples of 2?

b Which are multiples of 3?

c Which are multiples of 2 and 3?

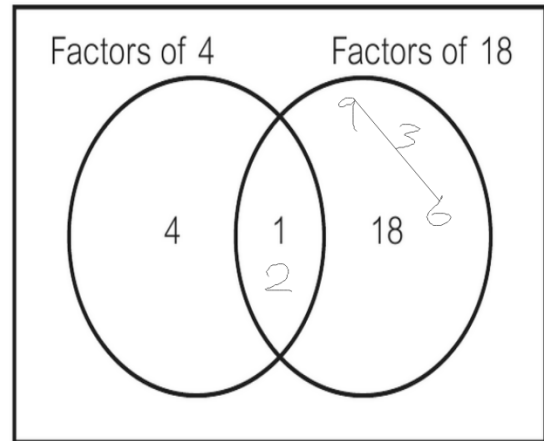
d Copy this **Venn diagram**.

Write each of the numbers in the correct section.



Example:

- a We are going to put all the factors of 4 and 18 into the Venn diagram.
- b What do the numbers in the overlapping region represent



Your turn:

- a Draw a Venn diagram to show the factors of 8 and 12.
- b What are the **common factors** of 8 and 12?

**Discussion** Have you found *all* the factors of 8? How do you know?

Find the common factors of each of these pairs of numbers.

**a** 9 and 15

**b** 18 and 27

**c** 16 and 24



**a** List the factors of each of these numbers.

**i** 17

**ii** 35

**iii** 29

**b** Which of the numbers in part **a** are **prime** numbers?

Homework:

**a** Write the prime numbers between 10 and 30.

~~**b** What do these numbers have in common?~~

**c Reasoning** Are all prime numbers odd?  
Give a reason for your answer.

d) Find 88% of \$77

e) Find 43% of 93 ml

f) Find 55.3% of 600 cm

Date:

Title: Prime factor decomposition

LO: To be able to recognise prime factors

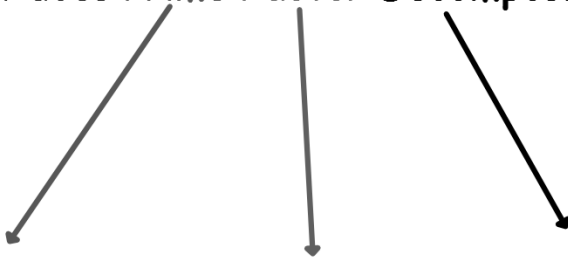
LLO: To read questions carefully to make sure we use the correct operation.

**Starter:** Find all the factors of the following numbers, and highlight the prime numbers

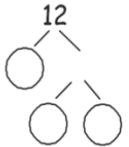
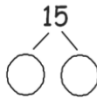
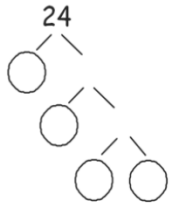
1) 78

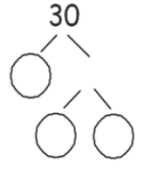
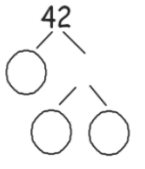
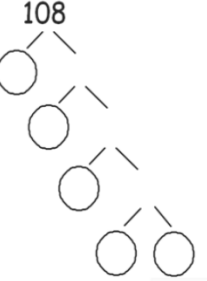
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What does **Prime Factor Decomposition** mean?



**Examples:** Express each number as a product of prime factors

<p>1)</p>  <p><math>12 = \bigcirc \times \bigcirc \times \bigcirc</math>  <math>12 = \square^2 \times \square</math></p>	<p>2)</p>  <p><math>15 = \bigcirc \times \bigcirc</math></p>	<p>3)</p>  <p><math>24 = \bigcirc \times \bigcirc \times \bigcirc \times \bigcirc</math>  <math>24 = \square^3 \times \square</math></p>
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<p>4)</p>  <p><math>30 = \bigcirc \times \bigcirc \times \bigcirc</math></p>	<p>5)</p>  <p><math>42 = \bigcirc \times \bigcirc \times \bigcirc</math></p>	<p>6)</p>  <p><math>108 = \bigcirc \times \bigcirc \times \bigcirc \times \bigcirc \times \bigcirc</math>  <math>108 = \square^3 \times \square^2</math></p>
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**Classwork**

**Prime factor Decomposition**

Express each number as products of their prime factors:

- |       |       |        |         |        |       |
|-------|-------|--------|---------|--------|-------|
| 1) 24 | 2) 32 | 3) 45  | 4) 48   | 5) 28  | 6) 40 |
| 7) 60 | 8) 96 | 9) 120 | 10) 108 | 11) 98 |       |