

Times Tables - Do YOU know your number facts?

Sheet 1

RED - 2 Times Table

Multiplication facts:	Division facts:	Fraction facts: (halves)
$1 \times 2 = 2$	$2 \div 2 = 1$	$1/2$ of 2 = 1
$2 \times 2 = 4$	$4 \div 2 = 2$	$1/2$ of 4 = 2
$3 \times 2 = 6$	$6 \div 2 = 3$	$1/2$ of 6 = 3
$4 \times 2 = 8$	$8 \div 2 = 4$	$1/2$ of 8 = 4
$5 \times 2 = 10$	$10 \div 2 = 5$	$1/2$ of 10 = 5
$6 \times 2 = 12$	$12 \div 2 = 6$	$1/2$ of 12 = 6
$7 \times 2 = 14$	$14 \div 2 = 7$	$1/2$ of 14 = 7
$8 \times 2 = 16$	$16 \div 2 = 8$	$1/2$ of 16 = 8
$9 \times 2 = 18$	$18 \div 2 = 9$	$1/2$ of 18 = 9
$10 \times 2 = 20$	$20 \div 2 = 10$	$1/2$ of 20 = 10
$11 \times 2 = 22$	$22 \div 2 = 11$	$1/2$ of 22 = 11
$12 \times 2 = 24$	$24 \div 2 = 12$	$1/2$ of 24 = 12

Orange - 2 and 10 Times Table

Multiplication facts:	Division facts:	Fraction facts: (tenths)
$1 \times 10 = 10$	$10 \div 10 = 1$	$1/10$ of 10 = 1
$2 \times 10 = 20$	$20 \div 10 = 2$	$1/10$ of 20 = 2
$3 \times 10 = 30$	$30 \div 10 = 3$	$1/10$ of 30 = 3
$4 \times 10 = 40$	$40 \div 10 = 4$	$1/10$ of 40 = 4
$5 \times 10 = 50$	$50 \div 10 = 5$	$1/10$ of 50 = 5
$6 \times 10 = 60$	$60 \div 10 = 6$	$1/10$ of 60 = 6
$7 \times 10 = 70$	$70 \div 10 = 7$	$1/10$ of 70 = 7
$8 \times 10 = 80$	$80 \div 10 = 8$	$1/10$ of 80 = 8
$9 \times 10 = 90$	$90 \div 10 = 9$	$1/10$ of 90 = 9
$10 \times 10 = 100$	$100 \div 10 = 10$	$1/10$ of 100 = 10
$11 \times 10 = 110$	$110 \div 10 = 11$	$1/10$ of 110 = 11
$12 \times 10 = 120$	$120 \div 10 = 12$	$1/10$ of 120 = 12

Yellow - 2, 10 and 5 Times Table

Multiplication facts:	Division facts:	Fraction facts: (fifths)
$1 \times 5 = 5$	$5 \div 5 = 1$	$1/5$ of 5 = 1
$2 \times 5 = 10$	$10 \div 5 = 2$	$1/5$ of 10 = 2
$3 \times 5 = 15$	$15 \div 5 = 3$	$1/5$ of 15 = 3
$4 \times 5 = 20$	$20 \div 5 = 4$	$1/5$ of 20 = 4
$5 \times 5 = 25$	$25 \div 5 = 5$	$1/5$ of 25 = 5
$6 \times 5 = 30$	$30 \div 5 = 6$	$1/5$ of 30 = 6
$7 \times 5 = 35$	$35 \div 5 = 7$	$1/5$ of 35 = 7
$8 \times 5 = 40$	$40 \div 5 = 8$	$1/5$ of 40 = 8
$9 \times 5 = 45$	$45 \div 5 = 9$	$1/5$ of 45 = 9
$10 \times 5 = 50$	$50 \div 5 = 10$	$1/5$ of 50 = 10
$11 \times 5 = 55$	$55 \div 5 = 11$	$1/5$ of 55 = 11
$12 \times 5 = 60$	$60 \div 5 = 12$	$1/5$ of 60 = 12

Green - 2, 5, 10 and 3 Times Table

Multiplication facts:	Division facts:	Fraction facts: (thirds)
$1 \times 3 = 3$	$3 \div 3 = 1$	$1/3$ of 3 = 1
$2 \times 3 = 6$	$6 \div 3 = 2$	$1/3$ of 6 = 2
$3 \times 3 = 9$	$9 \div 3 = 3$	$1/3$ of 9 = 3
$4 \times 3 = 12$	$12 \div 3 = 4$	$1/3$ of 12 = 4
$5 \times 3 = 15$	$15 \div 3 = 5$	$1/3$ of 15 = 5
$6 \times 3 = 18$	$18 \div 3 = 6$	$1/3$ of 18 = 6
$7 \times 3 = 21$	$21 \div 3 = 7$	$1/3$ of 21 = 7
$8 \times 3 = 24$	$24 \div 3 = 8$	$1/3$ of 24 = 8
$9 \times 3 = 27$	$27 \div 3 = 9$	$1/3$ of 27 = 9
$10 \times 3 = 30$	$30 \div 3 = 10$	$1/3$ of 30 = 10
$11 \times 3 = 33$	$33 \div 3 = 11$	$1/3$ of 33 = 11
$12 \times 3 = 36$	$36 \div 3 = 12$	$1/3$ of 36 = 12

BROWN - 2, 3, 5, 10 and 4 Times Table

Multiplication facts:	Division facts:	Fraction facts: (quarters)
$1 \times 4 = 4$	$4 \div 4 = 1$	$1/4$ of 4 = 1
$2 \times 4 = 8$	$8 \div 4 = 2$	$1/4$ of 8 = 2
$3 \times 4 = 12$	$12 \div 4 = 3$	$1/4$ of 12 = 3
$4 \times 4 = 16$	$16 \div 4 = 4$	$1/4$ of 16 = 4
$5 \times 4 = 20$	$20 \div 4 = 5$	$1/4$ of 20 = 5
$6 \times 4 = 24$	$24 \div 4 = 6$	$1/4$ of 24 = 6
$7 \times 4 = 28$	$28 \div 4 = 7$	$1/4$ of 28 = 7
$8 \times 4 = 32$	$32 \div 4 = 8$	$1/4$ of 32 = 8
$9 \times 4 = 36$	$36 \div 4 = 9$	$1/4$ of 36 = 9
$10 \times 4 = 40$	$40 \div 4 = 10$	$1/4$ of 40 = 10
$11 \times 4 = 44$	$44 \div 4 = 11$	$1/4$ of 44 = 11
$12 \times 4 = 48$	$48 \div 4 = 12$	$1/4$ of 48 = 12

BLUE - 2, 3, 4, 5, 10 and 11 Times Table

Multiplication facts:	Division facts:	Fraction facts: (elevenths)
$1 \times 11 = 11$	$11 \div 11 = 1$	$1/11$ of 11 = 1
$2 \times 11 = 22$	$22 \div 11 = 2$	$1/11$ of 22 = 2
$3 \times 11 = 33$	$33 \div 11 = 3$	$1/11$ of 33 = 3
$4 \times 11 = 44$	$44 \div 11 = 4$	$1/11$ of 44 = 4
$5 \times 11 = 55$	$55 \div 11 = 5$	$1/11$ of 55 = 5
$6 \times 11 = 66$	$66 \div 11 = 6$	$1/11$ of 66 = 6
$7 \times 11 = 77$	$77 \div 11 = 7$	$1/11$ of 77 = 7
$8 \times 11 = 88$	$88 \div 11 = 8$	$1/11$ of 88 = 8
$9 \times 11 = 99$	$99 \div 11 = 9$	$1/11$ of 99 = 9
$10 \times 11 = 110$	$110 \div 11 = 10$	$1/11$ of 110 = 10
$11 \times 11 = 121$	$121 \div 11 = 11$	$1/11$ of 121 = 11
$12 \times 11 = 132$	$132 \div 11 = 12$	$1/11$ of 132 = 12

INDIGO - 2, 3, 4, 5, 10, 11 and 6 Times Table

Multiplication facts:	Division facts:	Fraction facts: (sixths)
$1 \times 6 = 6$	$6 \div 6 = 1$	$1/6$ of 6 = 1
$2 \times 6 = 12$	$12 \div 6 = 2$	$1/6$ of 12 = 2
$3 \times 6 = 18$	$18 \div 6 = 3$	$1/6$ of 18 = 3
$4 \times 6 = 24$	$24 \div 6 = 4$	$1/6$ of 24 = 4
$5 \times 6 = 30$	$30 \div 6 = 5$	$1/6$ of 30 = 5
$6 \times 6 = 36$	$36 \div 6 = 6$	$1/6$ of 36 = 6
$7 \times 6 = 42$	$42 \div 6 = 7$	$1/6$ of 42 = 7
$8 \times 6 = 48$	$48 \div 6 = 8$	$1/6$ of 48 = 8
$9 \times 6 = 54$	$54 \div 6 = 9$	$1/6$ of 54 = 9
$10 \times 6 = 60$	$60 \div 6 = 10$	$1/6$ of 60 = 10
$11 \times 6 = 66$	$66 \div 6 = 11$	$1/6$ of 66 = 11
$12 \times 6 = 72$	$72 \div 6 = 12$	$1/6$ of 72 = 12

VIOLET - 2, 3, 4, 5, 6, 10, 11 and 8 Times Table

Multiplication facts:	Division facts:	Fraction facts: (eighths)
$1 \times 8 = 8$	$8 \div 8 = 1$	$1/8$ of 8 = 1
$2 \times 8 = 16$	$16 \div 8 = 2$	$1/8$ of 16 = 2
$3 \times 8 = 24$	$24 \div 8 = 3$	$1/8$ of 24 = 3
$4 \times 8 = 32$	$32 \div 8 = 4$	$1/8$ of 32 = 4
$5 \times 8 = 40$	$40 \div 8 = 5$	$1/8$ of 40 = 5
$6 \times 8 = 48$	$48 \div 8 = 6$	$1/8$ of 48 = 6
$7 \times 8 = 56$	$56 \div 8 = 7$	$1/8$ of 56 = 7
$8 \times 8 = 64$	$64 \div 8 = 8$	$1/8$ of 64 = 8
$9 \times 8 = 72$	$72 \div 8 = 9$	$1/8$ of 72 = 9
$10 \times 8 = 80$	$80 \div 8 = 10$	$1/8$ of 80 = 10
$11 \times 8 = 88$	$88 \div 8 = 11$	$1/8$ of 88 = 11
$12 \times 8 = 96$	$96 \div 8 = 12$	$1/8$ of 96 = 12

Make sure you practise **every day** when you are able to, in order to improve! Aim for the top and to be the best!

In order to move up a level, you must answer **VERY quickly** and correctly (in under 5 seconds) - you will be asked 10 random questions from the current list and 5 from any other previous list (once you reach Orange) so make sure that you keep practising every level, even after you pass it. If your teacher is satisfied with your speed, then you may move up a level.

Times Tables - Do YOU know your number facts?

Sheet 2

BRONZE - 2, 3, 4, 5, 6, 8, 10, 11 and 9 Times Table

Multiplication facts:	Division facts:	Fraction facts: (ninths)
$1 \times 9 = 9$	$9 \div 9 = 1$	$1/9$ of 9 = 1
$2 \times 9 = 18$	$18 \div 9 = 2$	$1/9$ of 18 = 2
$3 \times 9 = 27$	$27 \div 9 = 3$	$1/9$ of 27 = 3
$4 \times 9 = 36$	$36 \div 9 = 4$	$1/9$ of 36 = 4
$5 \times 9 = 45$	$45 \div 9 = 5$	$1/9$ of 45 = 5
$6 \times 9 = 54$	$54 \div 9 = 6$	$1/9$ of 54 = 6
$7 \times 9 = 63$	$63 \div 9 = 7$	$1/9$ of 63 = 7
$8 \times 9 = 72$	$72 \div 9 = 8$	$1/9$ of 72 = 8
$9 \times 9 = 81$	$81 \div 9 = 9$	$1/9$ of 81 = 9
$10 \times 9 = 90$	$90 \div 9 = 10$	$1/9$ of 90 = 10
$11 \times 9 = 99$	$99 \div 9 = 11$	$1/9$ of 99 = 11
$12 \times 9 = 108$	$108 \div 9 = 12$	$1/9$ of 108 = 12

SILVER - 2, 3, 4, 5, 6, 8, 9, 10, 11 and 7 Times Table

Multiplication facts:	Division facts:	Fraction facts: (sevenths)
$1 \times 7 = 7$	$7 \div 7 = 1$	$1/7$ of 7 = 1
$2 \times 7 = 14$	$14 \div 7 = 2$	$1/7$ of 14 = 2
$3 \times 7 = 21$	$21 \div 7 = 3$	$1/7$ of 21 = 3
$4 \times 7 = 28$	$28 \div 7 = 4$	$1/7$ of 28 = 4
$5 \times 7 = 35$	$35 \div 7 = 5$	$1/7$ of 35 = 5
$6 \times 7 = 42$	$42 \div 7 = 6$	$1/7$ of 42 = 6
$7 \times 7 = 49$	$49 \div 7 = 7$	$1/7$ of 49 = 7
$8 \times 7 = 56$	$56 \div 7 = 8$	$1/7$ of 56 = 8
$9 \times 7 = 63$	$63 \div 7 = 9$	$1/7$ of 63 = 9
$10 \times 7 = 70$	$70 \div 7 = 10$	$1/7$ of 70 = 10
$11 \times 7 = 77$	$77 \div 7 = 11$	$1/7$ of 77 = 11
$12 \times 7 = 84$	$84 \div 7 = 12$	$1/7$ of 84 = 12

GOLD - Times Tables to 12

Multiplication facts:	Division facts:	Fraction facts: (twelfths)
$1 \times 12 = 12$	$12 \div 12 = 1$	$1/12$ of 12 = 1
$2 \times 12 = 24$	$24 \div 12 = 2$	$1/12$ of 24 = 2
$3 \times 12 = 36$	$36 \div 12 = 3$	$1/12$ of 36 = 3
$4 \times 12 = 48$	$48 \div 12 = 4$	$1/12$ of 48 = 4
$5 \times 12 = 60$	$60 \div 12 = 5$	$1/12$ of 60 = 5
$6 \times 12 = 72$	$72 \div 12 = 6$	$1/12$ of 72 = 6
$7 \times 12 = 84$	$84 \div 12 = 7$	$1/12$ of 84 = 7
$8 \times 12 = 96$	$96 \div 12 = 8$	$1/12$ of 96 = 8
$9 \times 12 = 108$	$108 \div 12 = 9$	$1/12$ of 108 = 9
$10 \times 12 = 120$	$120 \div 12 = 10$	$1/12$ of 120 = 10
$11 \times 12 = 132$	$132 \div 12 = 11$	$1/12$ of 132 = 11
$12 \times 12 = 144$	$144 \div 12 = 12$	$1/12$ of 144 = 12

DIAMOND - Multiples, factors and prime numbers

What is a factor?

A whole number that fits perfectly into another number.

What is a multiple?

Multiples are like extended times tables. It is any whole number that is created by multiplying the original number.

What is a prime number?

A number that is only divisible by 1 and itself.

Name 4 multiples of (eg: 7):

(Any numbers in the respective times table that are larger than the original number.)

Name 4 factors of (eg: 40):

(Any numbers that you can divide 40 by to get a whole number.)

What are the prime numbers between 0-10?

2, 3, 5, 7

Questions in yellow will be asked 3 times using different numbers.

PLATINUM - Factor pairs, common multiples and prime numbers

What is a factor pair?

Two factors of a number that when multiplied together, make the number.

What is a common multiple?

When two numbers share the same multiple—eg: common multiples of 14 and 2 are: 14, 28 and 42 (to name a few)

What are the common multiples of (eg: 6 and 8) that are below 100?

(24, 48, 72, 96)

What are the factor pairs of (eg: 12)?

(1 and 12,
2 and 6,
3 and 4)

What is a prime number between 50 and 100?

(Try to work out this on your own!)

What is a prime number that is over 100?

(Try to work out this on your own!)

Questions in yellow will be asked 3 times using different numbers.

TOPAZ - Indices and roots (squared)

Multiplication facts:

$$2^2 \text{ (2 squared)} = 4$$

$$3^2 \text{ (3 squared)} = 9$$

$$4^2 \text{ (4 squared)} = 16$$

$$5^2 \text{ (5 squared)} = 25$$

$$6^2 \text{ (6 squared)} = 36$$

$$7^2 \text{ (7 squared)} = 49$$

$$8^2 \text{ (8 squared)} = 64$$

$$9^2 \text{ (9 squared)} = 81$$

$$10^2 \text{ (10 squared)} = 100$$

$$11^2 \text{ (11 squared)} = 121$$

$$12^2 \text{ (12 squared)} = 144$$

Division facts:

$$2\sqrt{4} \text{ (square root of 4)} = 2$$

$$2\sqrt{9} \text{ (square root of 9)} = 3$$

$$2\sqrt{16} \text{ (square root of 16)} = 4$$

$$2\sqrt{25} \text{ (square root of 25)} = 5$$

$$2\sqrt{36} \text{ (square root of 36)} = 6$$

$$2\sqrt{49} \text{ (square root of 49)} = 7$$

$$2\sqrt{64} \text{ (square root of 64)} = 8$$

$$2\sqrt{81} \text{ (square root of 81)} = 9$$

$$2\sqrt{100} \text{ (square root of 100)} = 10$$

$$2\sqrt{121} \text{ (square root of 121)} = 11$$

$$2\sqrt{144} \text{ (square root of 144)} = 12$$

What is a squared number?

A number that has been multiplied by itself.

What is a square root?

The inverse of a squared number. It is a value that, when multiplied by itself, gives the number.

RUBY - Fraction, decimal and percentage equivalents

$$10\% = 0.1 = 1/10$$

Ten percent = Zero point one = One tenth

$$20\% = 0.2 = 1/5$$

Twenty percent = Zero point two = One fifth

$$5\% = 0.05 = 1/20$$

Five percent = Zero point zero-five = One twentieth

$$25\% = 0.25 = 1/4$$

Twenty five percent = Zero point two-five = One quarter

$$12.5\% = 0.125 = 1/8$$

Twelve point five percent = Zero point one-two-five = One eighth

$$1\% = 0.01 = 1/100$$

One percent = Zero point zero-one = One hundredth

$$2\% = 0.02 = 1/50$$

Two percent = Zero point zero-two = One fiftieth

$$33\% = 0.33 = 1/3$$

Thirty three percent = Zero point three-three recurring = One third

$$50\% = 0.5 = 1/2$$

Fifty percent = Zero point five = One half

$$100\% = 1.0 = 1/1$$

One hundred percent = One whole = One over one

What is an equivalent?

A pair or set of whole or decimal numbers, fractions or percentages that are equal in value.

What does the word recurring mean?

A number or group of numbers that repeats itself an infinite number of times.

How do we show that a number is recurring?

A dot is placed next to the digits that are to be repeated, higher than where a decimal point would be.

AMETHYST - Indices and roots (cubed)

Multiplication facts:

$$2^3 \text{ (2 cubed)} = 8$$

$$3^3 \text{ (3 cubed)} = 27$$

$$4^3 \text{ (4 cubed)} = 64$$

$$5^3 \text{ (5 cubed)} = 125$$

$$6^3 \text{ (6 cubed)} = 216$$

$$7^3 \text{ (7 cubed)} = 343$$

$$8^3 \text{ (8 cubed)} = 512$$

$$9^3 \text{ (9 cubed)} = 729$$

$$10^3 \text{ (10 cubed)} = 1000$$

$$11^3 \text{ (11 cubed)} = 1331$$

$$12^3 \text{ (12 cubed)} = 1728$$

Division facts:

$$3\sqrt{8} \text{ (cube root of 8)} = 2$$

$$3\sqrt{27} \text{ (cube root of 27)} = 3$$

$$3\sqrt{64} \text{ (cube root of 64)} = 4$$

$$3\sqrt{125} \text{ (cube root of 125)} = 5$$

$$3\sqrt{216} \text{ (cube root of 216)} = 6$$

$$3\sqrt{343} \text{ (cube root of 343)} = 7$$

$$3\sqrt{512} \text{ (cube root of 512)} = 8$$

$$3\sqrt{729} \text{ (cube root of 729)} = 9$$

$$3\sqrt{1000} \text{ (cube root of 1000)} = 10$$

$$3\sqrt{1331} \text{ (cube root of 1331)} = 11$$

$$3\sqrt{1728} \text{ (cube root of 1728)} = 12$$

What is a cubed number?

A number that is the product of three numbers which are the same.

What is a cube root?

The inverse of a cubed number. It is a value that, when multiplied by itself twice, gives the number.

Make sure you practise **every day** when you are able to, in order to improve! Aim for the top and to be the best!

In order to move up a level, you must answer **VERY quickly** and correctly (in under 5 seconds) - you will be asked 10 random questions from the list and 5 from any other previous list (once you reach Orange) so make sure that you keep practising every level, even after you pass it. If your teacher is satisfied with your speed, then you may move up a level.

Times Tables - Do YOU know your number facts?

Sheet 3

EMERALD - Fractions of amounts

What is (eg: 5/9 of 63)?
What is five ninths of sixty-three?

(Divide 63 by 9 and multiply by 5)
Here you can use your knowledge of what 1/9 of 63 is and multiply it by 5.

Calculate (eg: 7/12 of 24).
Calculate seven twelfths of twenty-four.

(Divide 24 by 12 and multiply by 7)
Here you can use your knowledge of what 1/12 of 24 is and multiply it by 7.

Find (eg: 2/5 of 45).
Find two fifths of forty-five.

(Divide 45 by 5 and multiply by 4)
Here you can use your knowledge of what 1/5 of 45 is and multiply it by 2.

What is a numerator?

It is the number above the line in a fraction. It shows how many parts of the whole that you currently have.

What is a denominator?

It is the number below the line in a fraction. It shows how many parts of the whole that there are in total.

How do you calculate a fraction of an amount?

You must divide the number by the denominator and multiply the answer by the numerator.

What is a unit fraction?

A unit fraction is any fraction where the numerator is 1.

Use your times table knowledge to calculate the answers on this level. The above calculations are only examples. **Any** number between 2 and 144 can be chosen as long as it is in a times table that has already been learned. Your previous knowledge of unit fractions will prove useful so dig out sheets 1 and 2 to practise! **The 5-second rule does not apply on this level** (it is up to your teacher's discretion).

ONYX - Percentages of amounts

What is (eg: 10% of 47)?
What is ten percent of forty-seven?

(Divide 47 by 10)
Here you can use your knowledge that 100% equals a whole and in order to get to 10% you divide by 10.

Calculate (eg: 1% of 110).
Calculate one percent of one hundred and ten.

(Divide 110 by 100)
Here you can use your knowledge that 100% equals a whole and in order to get to 1% you divide by 100.

Find (eg: 25% of 84).
Find twenty-five percent of eighty-four.

(Divide 84 by 4)
Here you can use your knowledge that 100% equals a whole and in order to get to 25% you divide by 4.

Calculate (eg: 5% of 30).
Calculate five percent of thirty.

(Divide 30 by 10 and halve the answer)
Here you can use your knowledge that 100% equals a whole and in order to get to 5% you find 10% and halve it.

What is (eg: 40% of 80)?
What is forty percent of eighty?

(Divide 80 by 10 and multiply by 4)
Here you can use your knowledge that 100% equals a whole and in order to get to 40% you divide by 10 to get 10% and multiply the answer by 4 to get 40%.

How do you calculate a percentage of an amount?

You must calculate how many times the percentage "fits in" to 100 as 100% is a whole, and then divide the amount by that number.

Use your times table knowledge to calculate the answers on this level. The above calculations are only examples. **Any** number between 2 and 144 can be chosen as long as it is in a times table that has already been learned. Your previous knowledge of unit fractions will prove useful so dig out sheets 1 and 2 to practise! **The 5-second rule does not apply on this level** (it is up to your teacher's discretion).

GARNET- Decimals of amounts

What is (eg: 0.5 x 88)?
What is zero point five multiplied by eighty-eight?

(Halve 88)
Here you can use your knowledge of equivalent fractions, decimals and percentages to calculate the answer.

Calculate (eg: 0.2 x 65).
Calculate zero point two times sixty-five.

(Divide 65 by 5)
Here you can use your knowledge of equivalent fractions, decimals and percentages to calculate the answer.

What is (eg: 0.01 x 99)?
What is zero point zero-one multiplied by ninety-nine?

(Divide 99 by 100)
Here you can use your knowledge of equivalent fractions, decimals and percentages to calculate the answer.

Calculate (eg: 0.15 x 70).
Calculate zero point one-five times seventy.

(Divide 70 by 10, halve the answer and multiply it by 3)
Here you can use your knowledge of equivalent fractions, decimals and percentages to calculate the answer.

What is (eg: 0.75 x 36)?
What is zero point seven-five multiplied by thirty-six?

(Divide 36 by 4 and multiply by 3)
Here you can use your knowledge of equivalent fractions, decimals and percentages to calculate the answer.

How do you calculate a fraction of an amount?

You must convert the decimal into a fraction or percentage and calculate the answer.

Use your times table and knowledge of equivalents to calculate the answers on this level. The above calculations are only examples. **Any** number between 2 and 144 can be chosen as long as it is in a times table that has already been learned. Your previous knowledge of Ruby will prove useful so dig out sheet 2 to practise! **The 5-second rule does not apply on this level** (it is up to your teacher's discretion).

SAPPHIRE - Multiplying and dividing by 10, 100, 1000

What is (eg: 40 x 600)?
What is forty multiplied by six hundred?

(Multiply 4 by 6 and multiply by 1000)
Here you can use your knowledge your times tables and place value to calculate the answer.

Calculate (eg: 900 x 120).
Calculate nine hundred times one hundred and twenty.

(Multiply 9 by 12 and multiply by 1000)
Here you can use your knowledge your times tables and place value to calculate the answer.

What is (eg: 1440 ÷ 120)?
What is one thousand four hundred and forty divided by one hundred and twenty?

(The two zeroes cancel each other out and so you divide 144 by 120)
Here you can use your knowledge your times tables and place value to calculate the answer.

Calculate (eg: 560 ÷ 8).
Calculate five-hundred and sixty divided by eight.

(You know 56 divided by 8 is 7, therefore you know that 560 divided by 8 is 70).
Here you can use your knowledge your times tables and place value to calculate the answer.

What is the distributive law of maths?

It states that you can split up a calculation into smaller steps and you will still get the same answer regardless of which method you use. (eg: $90 \times 4 = 9 \times 4 \times 10$)

Use your times table knowledge to calculate the answers on this level. The above calculations are only examples. **Any** number between 2 and 144 can be chosen as long as it is in a times table that has already been learned (but they can be multiplied by 10, 100 or 1000). Your previous knowledge of sheets 1 and 2 will prove useful so make sure to dig them out to practise!

Times Tables - Do YOU know your number facts?

Sheet 3

PERIDOT - Number sequences

What is special about the Fibonacci sequence?

The sequence starts with a zero and a one and from then on, each number is equal to the sum of the two before it.

What are the first 10 numbers in the Fibonacci sequence?

0, 1, 1, 2, 3, 5, 8, 13, 21, 34

What are the first 10 squared numbers?

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

What are the first 10 cubed numbers?

1, 8, 27, 64, 125, 216, 343, 512, 729, 1000

What is a perfect number?

A number that is equal to the sum of its divisors.

What are the first five perfect numbers?

6, 28, 496, 8128, 33 550 336

What's the next number in the following number sequence?

(eg: -24, -8, 8, 24, 40, __?)
Use your knowledge of number to think on your feet and find the difference between the numbers that you're given.

Questions in yellow will be asked 3 times using different numbers.

MOONSTONE - Metric and imperial equivalents

Length

1km = 1000m

One kilometre = One thousand metres

1m = 100cm

One metre = One hundred centimetres

1cm = 10mm

One metre = One hundred centimetres

1mi = 1760yd = 1.6km

One mile = One thousand, seven hundred and sixty yards = One-point-six kilometres

1yd = 3ft = 914 cm

One yard = Three feet = Nine hundred and fourteen centimetres

1ft = 12in = 30cm

One foot = Twelve inches = Thirty centimetres

1in = 2.5cm

One inch = Two-point-five centimetres

Capacity

1l = 1000ml

One litre = One thousand millilitres

1gal = 8pt = 4.5l

One gallon = Eight pints = Four-point-five litres

1pt = 568ml

One pint = Five hundred and sixty-eight millilitres

Mass

1kg = 1000g

One kilogram = One thousand grams

1st = 14lb = 6.4kg

One stone = Fourteen pounds = Six-point-four kilograms

1lb = 16oz = 453g

One pound = sixteen ounces = Four hundred and fifty-three grams

1oz = 28g

One ounce = Twenty-eight grams

What are the metric measures for (eg: mass)?

(Kilograms and grams)

What are the imperial measures for (eg: capacity)?

(Pints and gallons)

OPAL - Extended times tables to 25

What is (eg: 18×12)?

What is eighteen multiplied by twelve?

($12 \times 10 = 120$), ($12 \times 8 = 96$),

$120 + 96 = 216$

Using the distributive law, you can break 18 x 12 into separate calculations and add up the results to form your answer.

What is (eg: 9×15)?

What is nine times fifteen?

($9 \times 10 = 90$), ($9 \times 5 = 45$),

$90 + 45 = 135$

What is (eg: $204 \div 12$)?

What is two hundred and four divided by twelve?

($12 \times 10 = 120$), ($204 - 120 = 84 = 7 \times 12$),

$7 + 10 = 17$

You can use your knowledge of the distributive law to 'chunk' the question into smaller pieces to calculate your answer.

What is (eg: $176 \div 8$)?

What is one hundred and seventy-six shared between eight?

($8 \times 10 = 80$), ($80 \times 20 = 160$),

($176 - 160 = 16 = 8 \times 2$),

$20 + 2 = 22$

What is (eg: 115 of 90)?

What is one fifth of ninety?

($5 \times 10 = 50$), ($90 - 50 = 40 = 5 \times 8$)

$8 + 10 = 18$

What is the associative law of maths?

It states that, if using addition or multiplication multiple times, you can group the numbers and calculate them in any order

Use your times table knowledge as well as the associative and distributive laws to calculate the answers on this level. The above calculations are only examples. **Any** of the times tables to 12 can be chosen to be multiplied by any number **up to 25** (fraction facts will also be limited to **unit fractions**). Your previous knowledge of your times tables will prove useful so dig out sheets 1 and 2 to practise! **The 5-second rule does not apply on this level** (it is up to your teacher's discretion).

ORICHALCUM - Triple number multiplication

What is (eg: $3 \times 9 \times 50$)?

What is three multiplied by nine, multiplied by five?

($3 \times 9 = 27$), ($27 \times 5 = 135$)

$135 \times 10 = 1350$

Using the distributive and associative laws, you can solve the calculation using the most efficient method.

Calculate (eg: $4 \times 12 \times 3$).

Calculate four times twelve times three.

($4 \times 3 = 12$), $12 \times 12 = 144$

Using the distributive and associative laws, you can solve the calculation using the most efficient method.

What is the associative law of maths?

It states that, if using addition or multiplication multiple times, you can group the numbers and calculate them in any order (eg: $9 \times 4 \times 6 = 6 \times 9 \times 4 = 4 \times 6 \times 9$).

What is the distributive law of maths?

It states that you can split up a calculation into smaller steps and you will still get the same answer regardless of which method you use. (eg: $90 \times 4 = 9 \times 4 \times 10$)

For the best of the best! Use all of the mental calculation methods that you have practiced up to this point to truly show off your skills. The above calculations are only examples. **Any** of the times tables to 12 can be chosen to be multiplied by **any number (within reason)**. You will be asked 10 of these calculations/ definitions. Your previous knowledge of your times tables will prove incredibly useful so be sure to use sheets 1, 2 and 3 to practise!

Order:

- Red
- Orange
- Yellow
- Green
- Brown
- Blue
- Indigo
- Violet
- Bronze
- Silver
- Gold
- Diamond
- Platinum
- Topaz
- Ruby
- Amethyst
- Emerald
- Onyx
- Garnet
- Sapphire
- Peridot
- Opal
- Moonstone
- Orichalcum

Red
2 Times Table

Indigo
2, 3, 4, 5, 10, 11 and 6
Times Table

Orange
2 and 10 Times Table

Violet
2, 3, 4, 5, 6, 10, 11 and 8
Times Table

Yellow
2, 10 and 5 Times Table

Bronze
2, 3, 4, 5, 6, 8, 10, 11 and 9
Times Table

Green
2, 5, 10 and 3 Times Table

Silver
2, 3, 4, 5, 6, 8, 9, 10, 11 and 7
Times Table

Brown
2, 3, 5, 10 and 4 Times Table

Gold
Times Tables to 12

Blue
2, 3, 4, 5, 10 and 11 Times
Table

Diamond
Multiples, factors and prime
numbers

Platinum

Factor pairs, common multiples
and prime numbers

Topaz

Indices and roots (squared)

Ruby

Fraction, decimal and
percentage equivalents

Amethyst

Indices and roots (cubed)

Emerald

Fractions of amounts

Onyx

Percentages of amounts

Garnet

Decimals of amounts

Sapphire

Multiplying and dividing by 10,
100, 1000

Peridot

Number Sequences

Opal

Extended times tables to 25

Moonstone

Equivalent measures

Orichalcum

Triple number calculations

Order:

Red
Orange
Yellow
Green
Brown
Blue
Indigo
Violet
Bronze
Silver
Gold
Diamond
Platinum
Topaz
Ruby
Amethyst
Emerald
Onyx
Garnet
Sapphire
Peridot
Opal
Moonstone
Orichalcum