Key Language

1	**Percentage multiplier**	A percentage converted to a decimal
2	**Simple Interest**	Extra amount calculated as a percentage of the original amount.
3	**Compound interest**	Where interest is calculated on both the amount borrowed plus previous interest.
4	**Profit/loss**	Income subtract all expenses
5	**Simultaneous Equations**	Two or more equations that share the same variables
6	**Eliminate the variable**	Process of manipulating expressions/equations in order to remove a variable
7	**Algebraic Fraction**	A fraction containing algebraic expressions
8	**Sequence**	A set of numbers that follow a rule
9	**nth term**	The algebraic expression that defines the rule of a sequence
10	**Term (sequence)**	A number in a sequence
11	**Position**	Where a certain number appears in a sequence

Formulae to Learn

Calculating a percentage change = original amount x percentage multiplier

Finding a percentage change = <u>new value – original value</u> x 100
original value

COMPOUND INTEREST:

$$A = P\left(1 + \frac{r}{100}\right)^n$$

where :

A = *total amount after n years*
P = *principal or original value*
r = *rate of interest per annum*
n = *number of years the money is invested*

Know

More to Learn

Square numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
Cube numbers: 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000

Sequence:

3, 5, 7, 9, ...

1st term
2nd term
3rd term
4th term
three dots means
goes on forever (infinite)

("term", "element" or "member" mean the same thing)
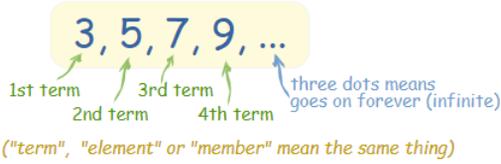
Percentage increase	Multiplier for percentage increase
10%	1.1
25%	1.25
17%	1.17
1%	1.01
5%	1.05
33.5%	1.335
7%	1.07
24.3%	1.243

Notes Section:

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{1}{3}$	0.333333..... 0.$\dot{3}$	33.$\dot{3}$ %
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{1}{10}$	0.1	10%

Know

ORDER OF OPERATIONS

G GROUPING SYMBOLS
() {} []

E EXPONENTS
3^2 x^2 10^5

M MULTIPLICATION **OR** DIVISION
GO FROM LEFT TO RIGHT

S SUBTRACTION **OR** ADDITION
GO FROM LEFT TO RIGHT
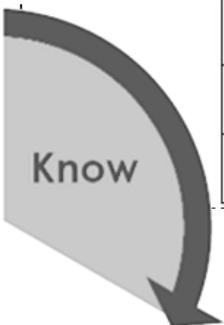
PRACTICE QUESTIONS

1. What do we call the number we multiply by to calculate a percentage?

2. Which interest is calculated as a percentage of the original amount?

3. Which interest is calculated as a percentage of the amount borrowed and previous interest?

4. How do we calculate profit/loss?

5. What is the multiplier to find 60% of something?

6. What is the multiplier to increase something by 60%?

7. What is the multiplier to decrease something by 60%?

8. What type of equations share their variables?

9. What is the process called to get rid of a variable?

10. What do we call fractions that contain expressions?

11. What do we call a set of numbers that follow a rule?

12. What are the square numbers between 99 and 200?

13. What are the cube number less than 500?

14. What is the name for the algebraic expression that defines the rule of a sequence?

15. What is the 4th term in the sequence: 1, 3, 6, 10, 15, 21, 28

16. What is the 12th term in the sequence with nth term of $6n - 10$?

17. In the simultaneous equations $3x+2y=10$ and $5x+2y=16$, how would you eliminate y?

18. In the simultaneous equations $-2x+3y=6$ and $2x + 5y=10$, how would you eliminate x?

19. What calculation would work out the final value if £250 is invested in a savings account gaining 2% interest per year for 5 years?

ANSWERS

1. Percentage multiplier
2. Simple
3. Compound
4. Income subtract all expenses
5. 0.6
6. 1.6
7. 0.4
8. Simultaneous
9. Eliminate the variable
10. Algebraic Fractions
11. Sequence
12. 100, 121, 144, 169, 196
13. 1, 8, 27, 64, 125, 216, 343
14. nth term
15. 10
16. 62
17. Subtract them together
18. Add them together
19. 250×1.02^5

Do