Probability Terms

Sample space	The set of all possible outcomes (e.g 1,2,3,4,5,6 on a normal dice)
Equally likely outcomes	A situation in which all outcomes have the same chance of occuring
Mutually exclusive events	These events have no outcomes in common
Non mutually exclusive events	These events have at least one outcome in common

Probability can be expressed in fraction, decimal or percentage form.

Complementary Events

Luke's chance of clearing the high jump is 7/10. Luke's chance of not clearing the high jump is?

> 1 (10) - 7/10 = 3/10 P(not clearing the high jump)

We have a bag with 9 red marbles, 2 blue marbles, and 3 green marbles. What is the probability of not selecting a blue marble?

> Number of total marbles = 14
> Blue marbles = 2
> 1 (14) - 2 = 12/14 P(non blue marbles)

Probability Information

A "standard" deck of playing cards consists of 52 Cards in each of the 4 suits of Spades, Clubs (black suite), Hearts, and Diamonds (red suite). Each suit contains 13 cards: Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, Jack, Queen, King. Ace may or may not be higher than King.

To convert 12 hour time to 24 hour time follow these rules. For AM times, leave the times the same except for single digit hours in which a 0 is written at the front. For PM times, add 12 to the hour digits.

Time Zones

What is the time in London, when it is 9am in Sydney? (Sydney is 10 hours ahead)

> London time = Sydney time - 10 hours
> 9am - 10h = 11pm in London

What is the time in Sydney, when it is 9am in London? (London is 10 hours behind)

> Sydney time = London time + 10 hours
> 9am + 10h = 7pm in Sydney

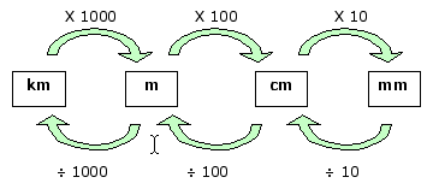
Volume of Prisms

Rectangular prisms	Length x Width x Height
Triangular prisms	Area of triangle x Height
Any other prism	Area x Height (area of the cross section and height is the height of the prism)

If the question tells you to, find the area of the shape's cross section and then times the amount by the height to get the volume.

Remember to add cubed units to the answer.

Conversions



Area of Plane Shapes

Rectangle	Width x Height (or wh)
Square	a² (a = length of side)
Triangle	1/2 x Base x Height (or bh)
Trapezium	1/2 x (side a+ side b)
Parallelogram	Base x Height (or bh)

Area of Plane Shapes (cont)

Rhombus/Kite	Side A x Side B / 2

For a composite shape, split the shape into already known shapes and use their respective methods to find the area (add the areas together).

Remember to add squared units with the answer.

Volume and Capacity Conversions

Cubic Millimetres	mm^3	
Cubic Millimetres	cm^3	$1cm^3 = 1000m^3$
Cubic Metres	m^3	$1m^3 = 1000\ 000\ cm^3$
Millilitre	mL	$1mL = 1cm^3$
Litres	L	$1L = 1000ml = 1000cm^3$
Kilolitres	kL	$1kL = 1000L = 1m^3$
Megalitres	ML	$1ML = 1000kL = 1000\ 000L$

Index Notation

m x m

> m^2

5 x n x n x n

> $5n^3$

When a pronumeral is multiplied by itself a number of times we can simplify the expression using index notation.

Remember to substitute if necessary.

Dividing Algebraic Terms

30a / 2a

> Divide the numbers first, so 30 / 2 = 15. Next, cancel out the pronumerals. A goes into A, which gives us just 15.

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Dividing Algebraic Terms (cont)

$12ab / 6a^2$

Divide the numbers first, so 12 / 6 equals 2. Next, cancel out the pronumerals. A goes into A but B does not go into A. This gives us 2b / a.

Remember to always write the dividing algebraic terms in fraction form.

Factorising Algebraic Terms

3a + 12

3 x a + 3 x 4 is the expanded form.
The factorised form is 3(a + 4).

6m + 9

First, find the HCF. In this case, it is 3.

Put the HCF out the front of a pair of brackets. Find what the HCF is multiplied by to get each term.

So we end up getting 3(2m + 3)

Factorising is the reverse form of expanding. A good way to check your factorisation is by expanding your answer it to see if you get the original expression

Adding and Subtracting Like Terms

5x - 2y - 3x + 7y

Move the terms with the same pronumeral next to each other. So we get 5x - 3x - 2y + 7y

Simplify and you get 2x + 5y

7ab - 3bc + 2ab

Move the terms with the same pronumeral next to each other. So we get 7ab + 2ab - 3bc

Simplify and you get 9ab - 3bc

Only *like terms* can be added or subtracted together.

Multiplying Algebraic Terms

10 x 3n

10 x 3 = 30
30 x n = 30n

20n x 3mn

20 x 3 = 60
60 x n x n x m = $60n^2m$

Remember to multiply the numbers first, then multiply the pro numerals (or add it to the end of the product).

Negative and positive rules also apply to any problems.

Negative and Positive Rules

MULTIPLICATION RULES

1st Number	2nd Number	Result
Positive	Positive	Positive
Positive	Negative	Negative
Negative	Positive	Negative
Negative	Negative	Positive

Expanding Algebraic Terms

5(y + 3) + 2y

5 x y = 5y
5 x 3 = 15
5y + 2y = 7y
Expanded form is 7y + 15

3(a + 4) + 2(5 - a)

3 x a = 3a
3 x 4 = 12
2 x 5 = 10
2 x a = 2a
3a +- 2a = a
12 + 10 = 22
Expanded form is a + 22

To write an expression without grouping symbols, multiply each term inside the grouping symbols by the term outside.

Watch out for expressions that have negative signs outside the grouping symbols

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