CALCULATOR

Paper 2 Revision F

Key topics to practice for 4th June

CALCULATOR

All the topics listed below are likely to appear in some form in paper 2 or 3.

Give them a go, check your answers with the solutions provided and speak to your teacher.

Very Likely topics

Simplify Algebraic Expressions	**Area of shapes**	**Gradients, intercepts, y=mx+c**	**Time calculations**
Fractions, decimals and percentages	**Forming expressions / equations from context**	**Solve Linear Equations**	**Metric Units**

Likely topics

Factors and Multiples	**Types of Number (odd, even, cube, prime)**	**Sequences (more likely nth term)**	**Money**
Probability			

USE A CALCULATOR

FIND A CALCULATOR

USE A CALCULATOR

Very Likely - Simplify Algebraic Expressions

Q1.

Simplify fully $2x + 9y + 1 + 8x - 5y - 7$

$= 2x + 8x + 9y - 5y + 1 - 7$

$= 10x + 4y - 6$

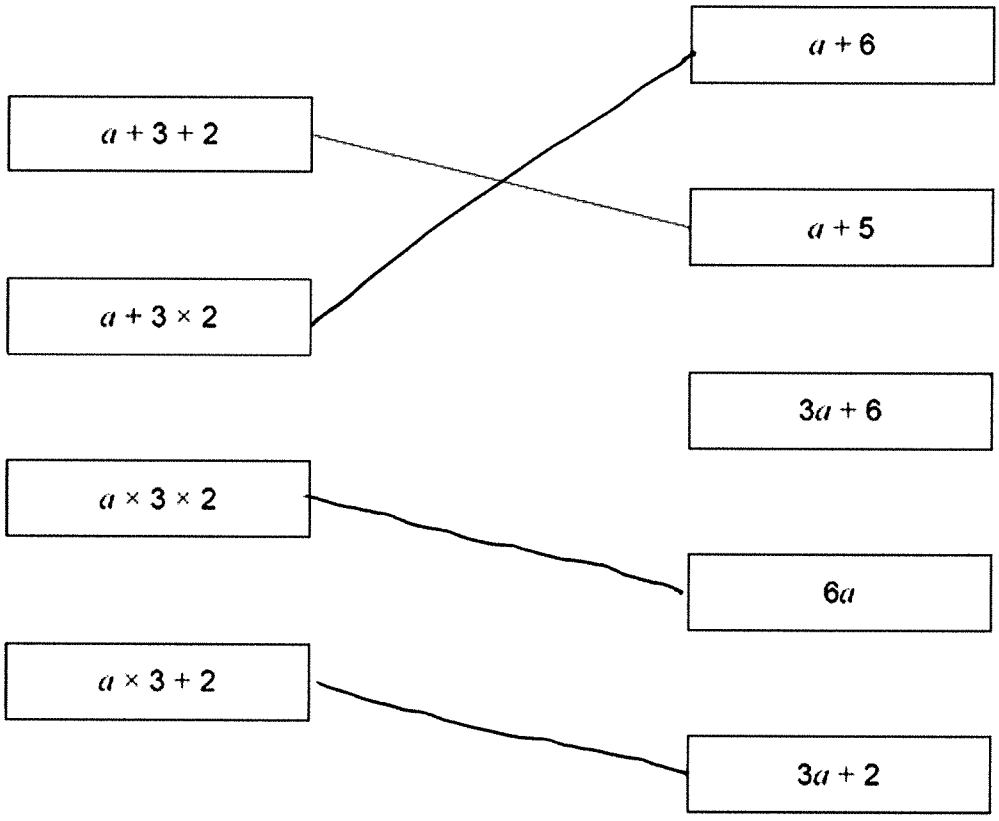
Answer $10x + 4y - 6$

(Total 3 marks)

Q3.

Match each expression on the left with one on the right.

One has been done for you.

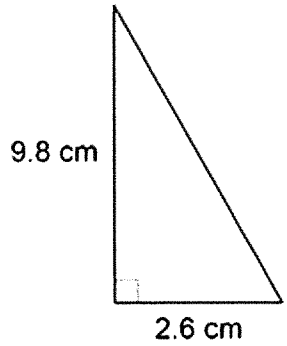


(Total 3 marks)

Very likely – Area of Shapes

Q4. Work out the area of this triangle.

Not drawn accurately



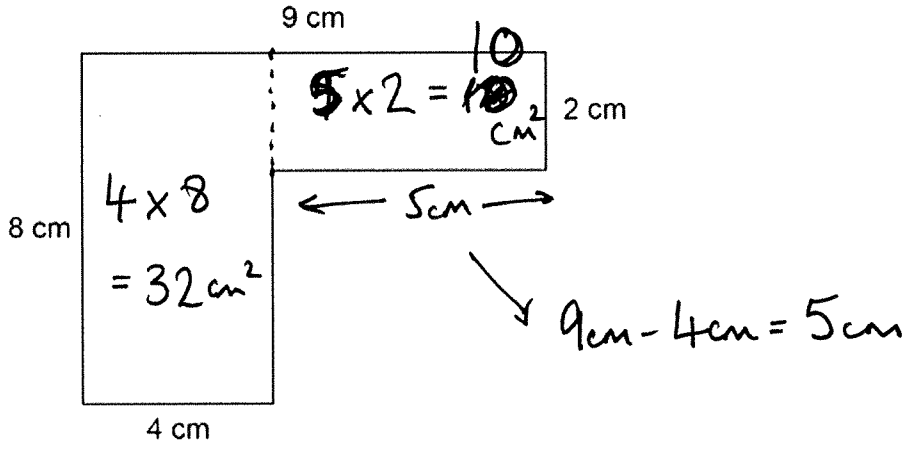
9.8 cm × 2.6 cm ÷ 2

Answer 12.74 cm²

(Total 2 marks)

Q5. Here is a shape made from rectangles.

Not drawn accurately



Work out the area.

4x8 = 32cm²

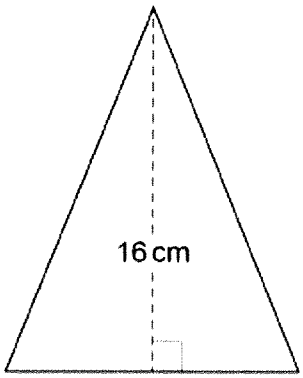
9x2 = + 10 cm²

Answer 42cm² cm²

(Total 3 marks)

Q6.

The rectangle and the triangle have the same area.



Not drawn accurately

Work out the length of the rectangle.

Area of △ = base × height ÷ 2

= 12 × 16 ÷ 2 = 96 cm²

area of □ = 96 cm²

width × length = 96 so length = 96 ÷ width

∴ 96 cm² ÷ 7.5 cm

Answer 12.8 cm

(Total 3 marks)

Very likely – Gradients, Intercepts, y=mx+c

Q7.

A line has the equation $y = 3x - 5$

(a) Write down the gradient of the line.

Answer 3

(1)

(b) Write down the y-intercept of the line.

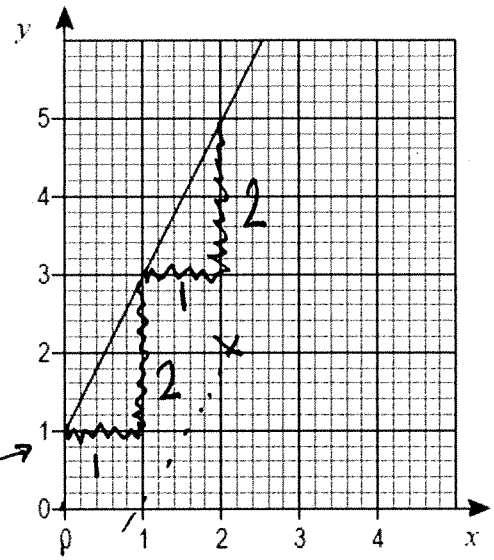
Answer −5

(1)

(Total 2 marks)

Q8.

Here is a graph of a straight line.



y intercept = 1

(a) Work out the equation of the line.

gradient ('steepness) = 2

Answer y = 2x + 1

(2)

(b) Work out the coordinates of the y-intercept of the line that

is parallel to the line in part **(a)**

and passes through (2, 2)

track back down 2, left 1 from (2, 2

Answer (0 , -2)

(2)

(Total 4 marks)

Q9. (x,y) (x,y)

Work out the gradient of the straight line through (–2, 3) and (1, 9)

(difference of y co-ordinates) ÷
(difference of x co-ordinates) =
(9-3) ÷ (1--2) = 6÷3 = 2

Answer 2

(Total 2 marks)

Very likely – Time calculations

Q10.

Times for the three parts of a journey are

- 20 minutes
- 40 minutes
- 1 hour 30 minutes.

Work out the **total** time for the journey.

Give your answer in hours.

20 + 40 + [redacted] 1hr + 30
1hr + 1hr + 30
= 2hr 30 mins

Answer 2½ or 2·5 hours

(Total 2 marks)

Q11.

Work out one quarter of 5 hours.

Give your answer in minutes.

5 ÷ 4 = 1·25 hrs
1·25 x 60 mins = 75 mins

Answer 75 minutes

(Total 2 marks)

Q12.

A TV series has ten episodes.

Nine episodes are each 50 minutes long.

One episode is 1 hour 42 minutes long.

Work out the **total** length of the series.

Give your answer in hours and minutes.

9 x 50 = 450 mins

1hr 42mins = 102 mins

total = 552 mins

÷ 60 = 9.2 hrs

0.2hrs x 60 = 12 minutes

Answer 9 hours 12 minutes

(Total 3 marks)

Q13.

Ali revises each day for five days.

On each of the first **four** days he revises from 5 pm to 8 pm

On the fifth day he starts revising at 1 pm

He finishes when he has revised for a **total** of 18 hours for the five days.

What time does he finish on the fifth day?

5pm → 8pm = 3 hours

4 x 3hours = 12 hours

18 - 12 = 6hours left to revise on day 5

1pm + 6hours = 7pm

Answer 7pm

(Total 3 marks)

Very likely – Fractions, Decimals, Percentages

Q14.

Write 0.27 as a fraction.

Answer $\frac{27}{100}$

(Total 1 mark)

Q15.

Write $\frac{2}{5}$ as a decimal.

Answer 0.4

(Total 1 mark)

Q16.

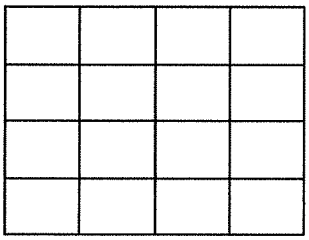
Circle the fraction equal to 0.1%

$\frac{1}{10}$ $\frac{1}{100}$ $\frac{1}{1000}$ $\frac{1}{10000}$

(Total 1 mark)

Q17. (a) Which **two** grids have one-quarter shaded?

A



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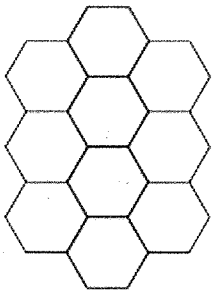
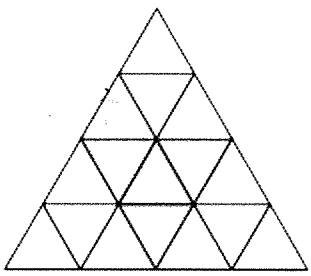
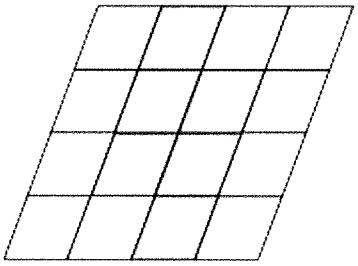


C



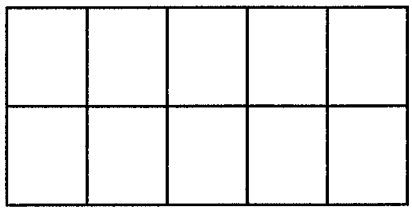
D



Answer A and C

(2)

(b) What percentage of this grid is shaded?



7/10 = 70/100

Answer 70 %

(2)

(Total 4 marks)

Q18. Before an election,

33% said they would vote for Party A

10% said they would vote for Party B

15% said they would **not** vote.

These all voted as they said.

In the rest of the population $\frac{1}{3}$ voted for Party A and $\frac{2}{3}$ voted for Party B.

(a) Who got the most votes?

You **must** show your working.

33% + 10% + 15% = 58% WHAT'S LEFT?

100% - 58% = 42%

$\frac{1}{3}$ of 42 = 14% → A $\frac{2}{3}$ of 42 = 28% → B

TOTAL A: 33% + 14% = 47% TOTAL B: 10% + 28% = 38

Answer A got most

(4)

(b) 6600 people did **not** vote.

How many did vote?

15% = 6600

So 1% = 6600 ÷ 15 = 440

So 85% = 440 × 85

Answer = 37 400

(2)

(Total 6 marks)

Q19.

A gym has 275 members.

40% are bronze members.
28% are silver members.
The rest are gold members.

Work out the number of gold members.

40% + 28% = 68%

GOLD = 100% - 68% = 32%

32% of 275 = 275 × 32 ÷ 100

Answer = 86

(Total 3 marks)

Very likely – Solving Equations

Q20.

(a) Solve $3x = 12$

÷3 ÷3

$x =$ 4

(1)

(b) Solve $y + 6 = 15$

−6 −6

$y =$ 9

(1)

(c) Solve $\frac{w}{4} = 5$

×4 ×4

$w =$ 20

(1)

(Total 3 marks)

Q21.

Solve $4x + 1 = 39$

$-1 \quad -1$

$4x = 38$

$\div 4 \quad \div 4$

$x = 9.5$

$x =$ 9.5

(Total 2 marks)

Very likely – Metric Units

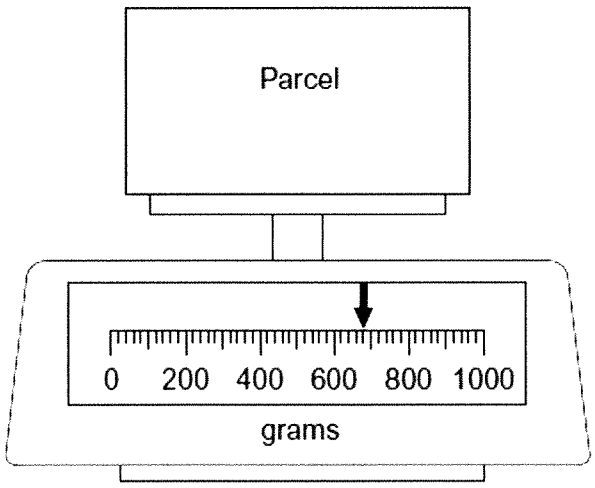
Q22.

Write down a suitable **unit** of mass for an apple.

Answer gramme or g

(Total 1 mark)

Q23. (a) Amir weighs a parcel.



What is the weight of his parcel?

Answer 680 grams

(1)

(b) Beth has a parcel that weighs 1600 grams.

What is 1600 grams in kilograms?

$\div 1000$

Answer 1.6 kilograms

(1)

(Total 2 marks)

Q24.

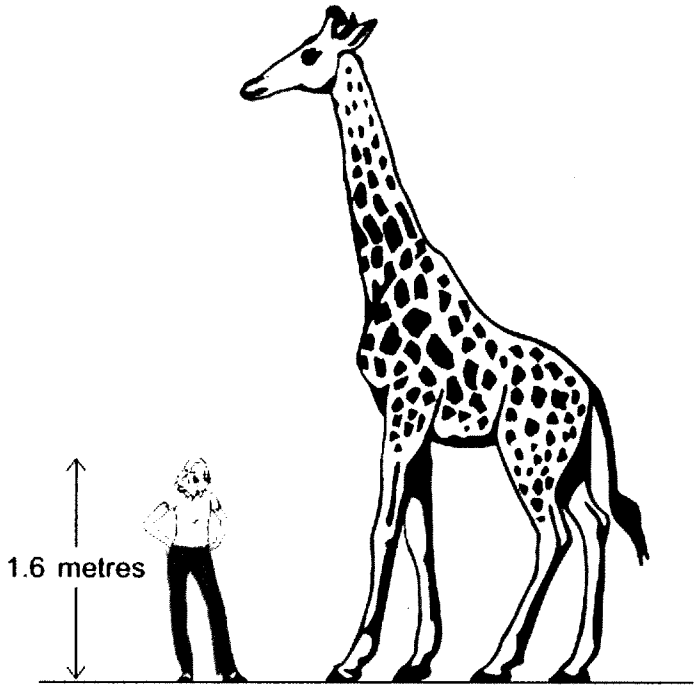
Circle the most suitable unit for each of the following.

The length of a human finger	centimetres	metres	kilometres
The amount of water in a bath	millilitres	centilitres	litres
The weight of a pencil	grams	kilograms	tonnes

(Total 3 marks)

Q25.

The diagram shows a woman standing beside a giraffe.



Estimate, in metres, the height of the giraffe.
You **must** show your working.

$3 \times 1.6 = 4.8$

Answer 4.8 metres

but any answer between 4.6 and 5.0 is ok.

(Total 2 marks)

Very likely – Forming expressions and equations

Q26.

The value of A is double the value of B.

Circle the correct formula.

$A = B + 2$ $\quad$ $A = 2B$ $\quad$ $A = \frac{B}{2}$ $\quad$ $A = B^2$

(Total 1 mark)

Q2.

e is 3 **more** than d.

f is 5 **less** than d.

(a) Write an expression for e in terms of d.

$e = 3+d$ } ok
$d+3$ } as well

Answer $d+3$ or $3+d$

(1)

(b) Write an expression for f in terms of d.

Answer $d-5$

(1)

(c) Work out $e - f$

Simplify your answer.

$(d+3) - (d-5)$ because $-(-5) = +5$

$= d + 3 - d + 5$

$3+5 = 8$

Answer 8

(2)

(Total 4 marks)

Likely – Types of number

Q27.

Complete the boxes using

two **different** even numbers

and

two **different** odd numbers.

all different

11 + 8 + 6 + 21 = 46

(Total 2 marks)

Q28.

The first two cube numbers are 1 and 8

Show that

the 3rd cube number can be written as the sum of three different prime numbers.

27 = 3 + 5 + 19

or 3+7+17
or 3+11+13

learn these prime numbers: 2, 3, 5, 7, 11, 13, 17, 19...

(Total 3 marks)

Likely – Factors and Multiples

Q29.

Circle the number that is a multiple of 25

55 65 75 85

(Total 1 mark)

Q30. Complete the boxes using

a factor of 12

and

a factor of 40

3 × 10 = 30

or

6 × 5

(Total 2 marks)

Q31.

Work out the multiple of 60 that is closest to 400

60 x 1 = 60 60 x 5 = 300

60 x 2 = 120 60 x 6 = 360

60 x 3 = 180 60 x 7 = 420 400 ← closest

60 x 4 = 240

Answer 420

(Total 2 marks)

Likely – Sequences

Q32.

(a) Here is a sequence.

5 8 11 14 17 20

Write down the next number in the sequence.

Write down the rule for continuing the sequence.

Next number 20

Rule ADD 3

(2)

(b) Here is a different sequence.

Work out the nth term of the sequence.

7 13 19 25 31

gaps 6 6 6 6

6n 6 12 18

6n+1 7 13 19 etc

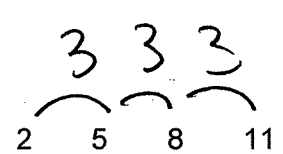
Answer 6n + 1

(2)

(Total 4 marks)

Q33.

A linear sequence begins



$3n = 3\ 6\ 9$

$-1 \downarrow \downarrow \downarrow$

$3n-1 = 2\ 5\ 8$

Work out an expression for the nth term.

Answer $3n-1$

(Total 2 marks)

Likely – Money

Q34.

One lettuce costs £1.29

How much do **seven** of these lettuces cost?

$1.29 \times 7 = 9.03$

Answer £ 9.03

(Total 1 mark)

Q35.

Five cucumbers cost £6.40 in total.

How much do **two** of these cucumbers cost?

$6.40 \div 5 = 1.28$ for 1

$\therefore\ 1.28 \times 2 = 2.56$ for 2

Answer £ 2.56

(Total 1 mark)

Q36.

An electric car uses 1 unit of electricity to travel 3 miles.

1 unit of electricity costs 50 pence.

Work out the cost of electricity, in pounds, to travel 270 miles.

3 miles costs 50p

So ×2 ↓ 6 miles costs £1

270 ÷ 6 = 45

45 × £1 =

Answer £ 45

(Total 3 marks)

Q37.

Leema buys 2 metres of linen at £8.50 per metre.

She also buys 5 metres of cotton.

The **total** cost is £38

What is the cost of **one** metre of cotton?

LINEN : 2 × £8.50 = £17

TOTAL = £38

TOTAL − LINEN = COTTON

£38 − £17 = £21 for 5m of COTTON

So £21 ÷ 5 = £4.20 for 1m

Answer £ 4.20

(Total 4 marks)

Likely – Probability

Q38.

An ordinary fair dice is rolled ten times.

Here are the first nine results.

6 1 3 2 1 5 5 5 5

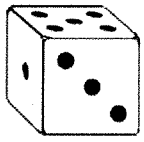
Write down the probability of getting a 5 on the tenth roll.

Answer 1/6

(Total 1 mark)

Q39.

An ordinary six-sided dice is rolled 300 times.
It lands on five 120 times.



Do you think the dice is fair?
Give a reason for your answer.

chance of 5 = 1/6

1/6 of 300 = 50, I would expect 50 5s

It has landed on 5 120 times which is more then double expectation so NO the dice is NOT fair.

(Total 2 marks)

Q40. A bag contains only red counters and blue counters.
There are 6 **more** red than blue.

A counter is chosen at random from the bag.

The probability it is blue is $\frac{1}{4}$

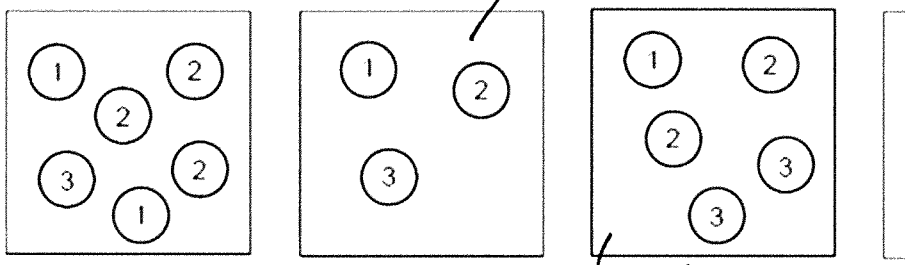
How many **red** counters are in the bag?

Probability of red is 3/4
so 2/4 (3/4 - 1/4) = 6 counters
so 4/4 = 12 counters (ALL) so RED = 3/4 of 12 = 9

Answer 9

(Total 3 marks)

Q41. Boxes A, B, C and D contain balls with numbers on them.



P(3) = 1/6

P(3) = 1/3

P(3) = 2/5

P(3) = 2/4 = 1/2

A ball is picked at random from each box.

(a) Which box gives the **greatest** chance of picking a 3?

You **must** show your working.

D has P(3) = 1/2 higher than any other box

Box D

(2)

(b) Which two boxes give the **same** chance of picking a 1?

A = 2/6 = 1/3 B = 1/3

Box A and Box B

(1) (Total 3 marks)

1st Paper 2 Key Topics

AQA Foundation

In this document you will find lists of topics to help you focus your revision for Paper 2. To do this I have carefully analysed the topics that appeared in your Paper 1 but also the trends from all previous exam papers.

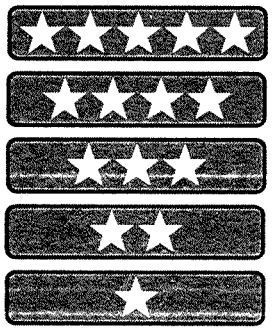
Each topic has been rated from 1 star to 5 stars. The more stars I have given it, the more likely I believe it could appear in Paper 2.

<u>This does not guarantee the topics with more stars will appear or those with low stars will not</u> but it may help you to prioritise topics for revision.

I will do this again after Paper 2 to help you focus revision for Paper 3. You should note that since there are still 2 papers left, many of the topics could appear on Paper 3 instead of, or as well as, Paper 2.

Be sure to subscribe to my YouTube channel and check the website to not miss out on resources. I will write more practice papers for each tier for Edexcel and AQA to help you revise. The dates for these are on the website.

- 1st Class Maths



<< Most likely topics to appear

<< Least likely topics to appear

@1stclassmaths

Simplify Algebraic Expressions	Area of shapes
Time calculations	Fractions, decimals and percentages
Gradients, Intercepts, y = mx + c	% of amount
Solve Linear Equations	Metric Units
Form Algebraic Expression/Equation From Context	

Types of Number (more likely odd/even/cube)	Substitution	Direct Proportion (not recipes)
Factors and Multiples	Sequences (more likely nth term	Share into ratio Application of Ratio
Money	Fraction of Amount	Probability

Use of inequality signs (< > ≤ ≥)	Draw/Use Straight Line Graph	Name Shape
Order Numbers	Coordinates	Angle Facts (around a point)
Unit Conversions (imperial or currency)	Compound Interest (Repeated % change)	Angles in a Triangle Properties of triangles
Number Machines	Increase/Decrease by %	Bearings and Compass Directions
Place Value	Write as a %/Write as Frac	Angles in Parallel Lines
Listing Outcomes	Direct/Inverse Proportion	Surface Area 3D shape
Use of calculator	Form and Solve Equation	Circles and Sectors
Change the Subject	Write as ratio (including form 1:n)	Pythagoras
Quadratic Graphs	Relate Ratio to Fraction/Percentage	Perimeter
Expression, Equation, Formula, Identity, Term, Inequality	Speed, Distance, Time	SOHCAHTOA
Distance Time Graphs	Error Intervals (or max/min values)	Similar Lengths
Expand/Simplify (includes double brackets)	Use of scales on a map or a ratio	Scale Drawings
Symmetry	Scatter Diagrams	Averages
Transformations	Relative Frequency	Averages Problem Solve
Constructions and Loci	Bar Charts	Venn Diagrams
Pie Charts		

@1stclassmaths

Multiply/Divide Decimals	Types of Graphs (Cubic, Reciprocal)	Measure Line/Angle
Equivalent fractions	Factorise (including quadratics)	Identify Parallel/Perpendicular Lines
Equivalent Calculations	Linear Inequalities	Parts of a Circle
Simplify Fractions	Inequality (List values)	Faces, Edges, Vertices
Fraction Operations	Inequality Diagram	Congruent Shapes/Similar Shapes
Order of Operations	Vertical and Horizontal Lines (and their equations)	Angles in a Quadrilateral/Properties of quadrilaterals
Order Fractions	Midpoint of line	Volume of 3D Shape
Tally Charts	Set notation	Area problem solve
Square roots, Cube roots	Show lines are Parallel	Volume Problem solving
Product of Prime Factors	Sampling	Column Vectors
HCF/LCM	Identities	Plans and Elevations
Indices	% Profit or %change [find the %]	Angles in Polygons
Index Laws	Reverse %	Probability of something not happening
Rounding	Simple Interest	Use of probability to estimate/work out exact amount
Estimation	Pressure, Force, Area	Tree Diagrams
Reciprocals	Population Density	Sample Space Diagrams
Bank Statements	Convert Units of area/volume	Two way tables
Linear Simultaneous Equations	Vertical Line Graph	Types of data (discrete, continuous)
Simultaneous Equations Graphically	Time Series Graph	

Negative Numbers	Conversion Graphs	Exact Trig Values
Standard Form	Simplify Ratio	Frequency Trees
Solve Quadratic Equation	Density, Mass, Volume	Pictograms