PiXL
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Mathematics – Edexcel Foundation Tier   Final week – can you do these?
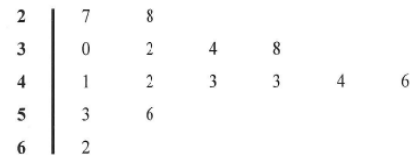
Statistics

1. The stem and leaf diagram shows the ages, in years, of 15 members of a club.
   (i) How many members are over 40?
   (ii) What is the median age of members?

2	7	8			
3	0	2	4	8	
4	1	2	3	3	4	6
5	3	6			
6	2				

2. Calculate an estimate of the mean

Weight (w kg)	Frequency
800 ≤ w < 900	1
900 ≤ w < 1000	2
1000 ≤ w < 1100	4
1100 ≤ w < 1200	3
1200 ≤ w < 1300	7
1300 ≤ w < 1400	3
1400 ≤ w < 1500	5

3. This shows the probabilities that a spinner will land on 1, 2, 3, 4 or 5. The spinner is spun 200 times. Estimate the number of times the spinner lands on a 5.

Number	1	2	3	4	5
Probability	0.15	0.20	0.10	0.25	0.30

4. A restaurant manager wants to find out how often local people eat in a restaurant. Design a suitable question for her to use on a questionnaire.

5. Find the mode and median of the following eleven numbers;
   8 5 4 5 7 10 9 5 11 5 6

6. Here are the results of a survey into vehicles passing a point. Here are the results; (a) Draw a data collection sheet and use it on this information. (b) Draw a bar chart to display this data.
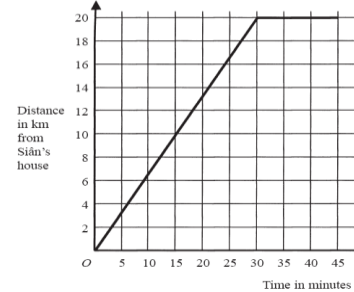
Car	Van	Lorry	Bike	Bus	Car
Van	Car	Car	Van	Lorry	Bike
Bike	Bike	Van	Lorry	Bike	Car
Car	Bus	Lorry	Car	Lorry	Bike

7. On a grid, draw a frequency polygon to show this information

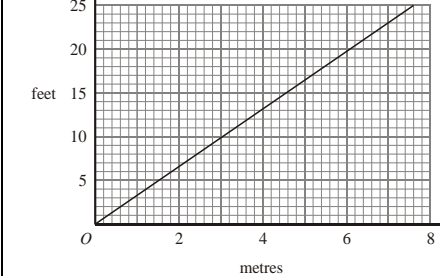| Age (t years)	Frequency
15 ≤ t < 20	95
20 ≤ t < 25	90
25 ≤ t < 30	35
30 ≤ t < 35	15
35 ≤ t < 40	5

8. There are 8 pencils in a pencil case. One is red, 4 are blue and the rest are black. A pencil is taken at random. What is the probability that the pencil is black?

Graphs

1. This is part of a travel graph. What is the speed for the first 30min of the journey?

2. Use the conversion graph to change
3. (a) 6 metres to feet (b). 15feet to metres

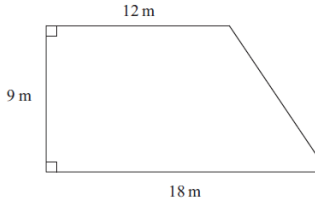4. Complete this table of values for y = 3x + 2 and draw the graph of y = 3x + 2

x	-2	-1	0	1	2
y		-1		5	

Problem Solving

1. Which of these 3 shops gives the best deal?

Sports '4' All Trainers	Edexcel Sports Trainers	Keef's Sports Trainers
£5 plus 12 payments of £4.50	$\frac{1}{5}$ off usual price of £70	£50 plus VAT at 20%

2. What is the cost of covering the garden below with grass seed.

Grass seed is sold in bags at £4.99. Each bag covers 20m².

3. A student bought sunglasses in the USA for $35.50. In England they cost £26.99. The Exchange Rate is £1 = $1.42. Which country is cheaper, and by how much

4. The following rule is used for cooking beef.

   Multiply the weight, in kg, by 40
   Then add 20

   The weight of a piece of beef is 1.5kg. How long will it take to cook?

Statistics & Probability

1. Ishah spins a fair 5-sided spinner and throws a fair coin. (a) List all the possible outcomes she could get. (b) What is the probability she will get a 1 and a head?

2. Complete this two-way table. (b) One person is chosen at random. What is the probability that this person does not wear glasses?

	Wear glasses	Not wear glasses	Total
Male		32	60
Female			40
Total	43		100

3. Kezia asked a group of children what their favourite card game is. This pictogram shows their answers.

Key ♣ = 2 children

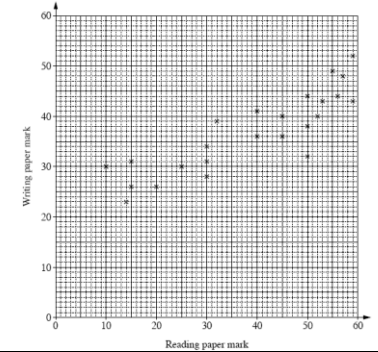(i) Ten children chose Snap. Show this on the pictogram. (ii) How many chose 'Go Fish'?

4. Students at a college were asked whether they wanted a new sports hall. This pie chart shows the results. (a) What percentage answered Yes? (b) What percentage answered "Don't know?"

5. There are two papers in an English exam. This scatter diagram shows the marks of 24 pupils who took both papers. (a) Describe the correlation. (b) Jane scored 42 on the reading paper estimate her mark on the writing paper.

Number

1. 36 is split between 3 people in the ratio 2 : 3 : 4. How much is the biggest share?
2. Express 252 as a product of its prime factors
3. The Highest Common Factor of two numbers is 3. The Lowest Common Multiple is 45. What are the two numbers?
4. Work out 70 ÷ (65 − 5 − 25) × 75
5. From this list, write down (a) a factor of 20 (b) a multiple of 10 (c) a prime number greater than 15
   4 5 25 29 30 33 39 40

6. Write down the name of the city which had the highest temperature. (b) Work out the difference in temperature between Copenhagen and Helsinki.

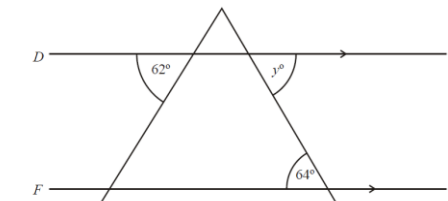| City	Temperature
Cairo	12 °C
Copenhagen	−3 °C
Helsinki	−8 °C
Manchester	0 °C
Moscow	−18 °C
Sydney	16 °C

Are you ready for the exam?

- Have you got all the necessary equipment?
- Do you know that answers have to be written in *black ink* (no pencil, except for diagrams and graphs)?
- The exams are on <u>Thursday 4th and Monday 8th June</u>. Do you know what time you have to arrive at the examination hall?
- Do you know the formulae for the Area and Perimeter of a circle?
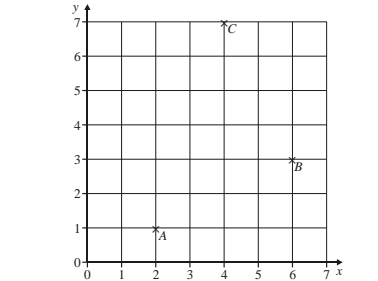
C= πd   A = πr²

Shape & Space

1. (i) Find the size of the angle marked y°. (ii) Give a reason for your answer.

2. Write down the mathematical name for each of these three different 3-D shapes.

3. Points A, B and C are three corners of a square ABCD. Write down the coordinates of A, B and C.
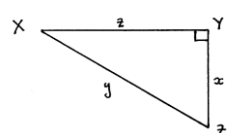

Fractions, Decimals & %

1. (i) Work out 45% of 800 (ii) Write 176 as a percentage of 800
2. Convert (a) 50% to a fraction. (b) 0.7 to a fraction (c) 3/5 to a percentage
3. Work out. (a) $\frac{3}{4} \times \frac{1}{5}$ (b) $\frac{6}{7} \div \frac{4}{3}$

Algebra

1. The equation $x^3 − 2x = 67$ has a solution between 4 and 5. Use trial and improvement to solve this to 1 decimal place.
2. Solve the inequality 3x + 2 > -7
3. Solve 7r + 2 = 5(r − 4)
4. Simplify 2(2n + 3) + 3(n + 1)
5. s = 0.5 at²
   Find the value of s when t = 3 and a = ¼
6. 5 8 11 14 are the first four terms of an arithmetic sequence. Find an expression in terms of n for the nth term.
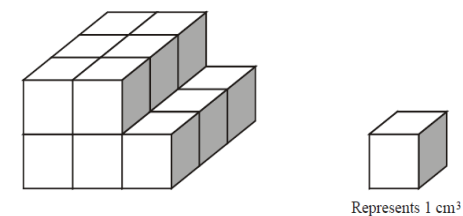
Trigonometry, Area & Volume

1. XY = 12cm and YZ = 5cm. What is XZ?

2. A circular dinner plate has a radius of 13 cm. Calculate the area of the plate.
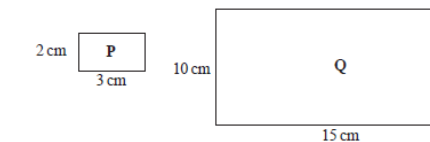3. Work out the size of an exterior angle of a regular pentagon.
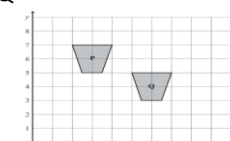
4. Work out the volume of the solid shape

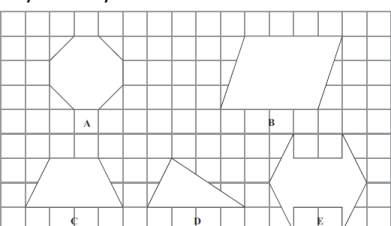Represents 1 cm³

Transformations

1. Rectangle Q is an enlargement of rectangle P. What is the scale factor?

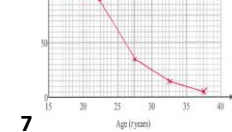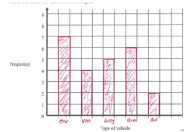2. What transformation maps shape P on to shape Q

3. Which two shapes have rotational symmetry of order 2?

Answers; Number 1   16   2 2 x 2 x 3 x 3 x 7   3 9 and 15   or 45 and 3   4   150 5 (a) 4 or 5 (b) 30 or 40 (c) 29   6 (a) Sydney (b)5 degrees   Algebra 1 4.2 2 x > -3   3 R = -11   4 7n + 9   5 s = 9/8   6 3n + 2   Problem solving 1 Sports 4 All;£59 Edexcel;£56 Keef;£60. Edexcel best value   2   area is 135m2 ; need 7 bags costing £34.93   3   USA $2.83 or £1.99 4 80 min Fractions, Decimals & Percentages   1 (a) 360 (b) 22%   2 (a) 1/2 (b) 7/10 (c) 60%   3 (a) 3/20 (b) 9/14   Shape & Space 1 64^0 Alternate Angles 2 (a) cuboid (b) cylinder (c) prism 3 A (2,1)   B (6,3)   C (4,7)   Trigonometry 1 XZ = 13cm   2 531cm^2 3 72^0 4   15cm^3 Transformations 1 5   2   Translation 3 to the right , 2 down 3 B and E   Statistics 1(i) 9 (ii) 42 2   1218   3 60   4 Should have at least 3 non-overlapping response boxes, and include a timescale 5   Mode 5   Median 6

6

7

8 3/8   **Statistics & Probability   1 (a) (1,H) (1,T) (2,H) (2,T) (3,H) (3,T) (4,H) (4,T) (5, H) (5,T) (b) 1/10 2 (a)**

	Wear glasses	Not wear glasses	Total
Male	28	32	60
Female	15	25	40
Total	43	57	100

(b) 57/100   3 (i) 5 symbols (ii) 3   4   (a) 35% (b) 40% 5 (a) positive

(b) 38 +/-2   Graphs 1   40 km/h 2 20 4.6   3

x	-2	-1	0	1	2
y	-4	-1	2	5	8