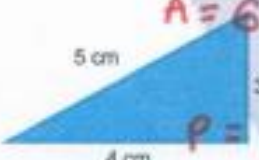


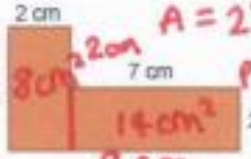
Shape, Space and Measure Revision Mat

Area and Perimeter


Calculate the area and perimeter of the following shapes:

1) 
 Area $5 \times 8 = 40 \text{ cm}^2$
 Perimeter $P = 5 + 8 + 5 + 8 = 26 \text{ cm}$

2) 
 Area $A = 6 \text{ cm}^2$
 Perimeter $P = 12 \text{ cm}$

3) 
 Area $A = 22 \text{ cm}^2$
 Perimeter $P = 26 \text{ cm}$

Calculate the area of the following shapes:


4) 
 Area $A = 28 \text{ cm}^2$
 Perimeter $(P = 24 \text{ cm})$

5) 
 Area $A = \frac{6+10}{2} \times 4 = 32 \text{ cm}^2$

Circles

Calculate the area and circumference of the following shapes:


1) 
 Circumference $c = 37.7 \text{ cm}$
 Area $a = 113.1 \text{ cm}^2$

2) 
 Area $A = 63.6 \text{ cm}^2$
 Circumference $C = 28.3 \text{ cm}$

Volume and Surface Area

Calculate the volume and surface area of the following:

1) 
 Volume $V = 56 \text{ cm}^3$
 Surface Area $S.A = 60 \text{ cm}^2$

2) 
 Volume $V = 502.7 \text{ cm}^3$
 Surface Area $SA = 351.9 \text{ cm}^2$

Angles

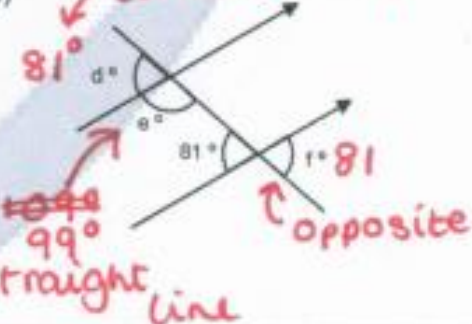
Calculate the missing angles in each of these diagrams and give reasons for your answers.

1) 
 165°
 90°
 105°
 a°

2) 
 34°
 73°
 b°

3) Diagram shows a regular pentagon


 c°
 108°

4) 
 CORRESPONDING
 81°
 d°
 a°
 81°
 r°
 99°
 opposite
 Straight line

Measures

- Convert 350 ml to litres. 0.35 ml
- Convert 6300 cm^2 to m^2 . $\div 100 \div 100 = 0.63 \text{ m}^2$
- Mia drove a distance of 343 km. She took 3 hours 30 minutes. Work out her average speed. Give your answer in km/h. 3.5 hrs
 $343 \div 3.5 = 98 \text{ km/h}$
- Daniel leaves his house at 07 00. He drives 87 miles to work. He drives at an average speed of 36 miles per hour. At what time does Daniel arrive at work?
 $87 \div 36 = 2.42 \text{ hrs (145 mins)}$ $S = \frac{D}{T}$ $T = \frac{D}{S}$
 $09 25$
- The mass of 5 m^3 of copper is 44 800 kg. Work out the density of copper.
 $\frac{44800}{5} = 8960 \text{ kg/m}^3$ $D = \frac{M}{V}$

Number Revision Mat

Place Value

- Write the number 4021 in words
four thousand + twenty one
- Write the number 72 308 in words
seventy two thousand three hundred and eight
- What is the value of 4 in 642?
400
- What is the value of 9 in 91 486?
90 000
- Calculate $670 \div 100$
6.7
- Calculate 2.73×10
27.3

BIDMAS

- Calculate: $2 + 3 \times 5 - 4$
13
- Paula says that $2 \times 3 - 2 \times 5 = -4$
Steve says the answer is 10.
Who is right, and why?
Multiply first
 $\rightarrow 6 - 10 = -4$
 \rightarrow Paula
- $10 - 3^2 =$
1
- $(15 - 3 \times 2)^2 =$
81

Types of Numbers

- List the first 5 multiples of 8.
8 16 24 32 40
- List the first 5 multiples of 14.
14 28 42 56 70
- List all the factors of 32.
1 32 4 8
2 16
- List all the factors of 48.
1 48 3 16 6 8
2 24 4 12
- What is the 6th prime number?
13
- Explain why 20 is not a square number.
 $\sqrt{20}$ is not a whole number.

HCF and LCM

- Calculate the highest common factor of 32 and 48.
16
- Calculate the lowest common multiple of 6 and 14.
42
- Calculate the lowest common multiple of 12 and 15.
60
- Calculate the highest common factor of 72 and 60.
12

Directed Numbers

- Put these numbers in ascending order: 1, 3, -3, -5, -7
-7 -5 -3 1 3
- Put these numbers in ascending order: -8, -3, 9, -7, 4
-8 -7 -3 4 9
- $5 - 11 =$ **-6**
- $-6 + -3 =$ **-9**
- $-2 \times -3 =$ **6**
- $-6 \times -7 =$ **42**
- $5 \times -6 =$ **-30**
- $36 \div -9 =$ **-4**
- $-2 - 4 =$ **-6**
- $18 - 32 =$ **-14**

Indices

- $y^7 \times y^3$ **y^{10}**
- $a^2 \times a^5 \times a^3$ **a^{10}**
- $b^7 \div b^6$ **$b^1 = b$**
- $h^3 \div h^8$ **h^{-5}**
- $\frac{c^2 \times c^2}{c^4}$ **$c^1 = c$**
- g^0 **1**
- $\frac{k^4}{k \times k^3}$ **$k^0 = 1$**

Rounding and estimating

- Round 34 for the nearest 10.
30
- Round 4932 to the nearest hundred.
4900
- Round 4.2 to the nearest whole number.
4
- Round 32.685 to one decimal place.
32.7
- Round 62 359 to one significant figure.
60 000
- Round 0.07045 to two significant figures.
0.070
- Estimate $\frac{72 \times 362}{0.49}$ **$\frac{70 \times 300}{0.5}$**
42000

Algebra Revision Mat

Simplifying

- $y + y + y + y$ $4y$
- $3a + 4a + 2a$ $9a$
- $5s + 5t + 3s + 2t$ $8s + 7t$
- $8f + 5g - 3f + 3g$ $3f + 8g$
- $4z - 3w - 2z - 3w$ $2z - 6w$

Solving Equations 1

- $x + 4 = 11$
 $x = 7$
- $w - 6 = 23$
 $w = 29$
- $5d = 70$
 $d = 14$
- $k/4 = 7$
 $k = 28$
- $2x + 6 = 12$
 $x = 3$

Expanding Brackets

- $3(a + 4)$ $3a + 12$
- $5(c + 6b)$ $5c + 30b$
- $4(x - 3y)$ $4x - 12y$
- $a(a + 5)$ $a^2 + 5a$
- $x(4y - 2x)$ $4xy - 2x^2$

nth Term

Find the nth term of the following sequences

- 5, 8, 11, 14, 17, ...
 $3n + 2$
- 9, 14, 19, 24, 29, ...
 $5n + 4$
- 3, 9, 15, 21, 27, ...
 $6n - 3$
- 2, 4, 6, 8, 10, ...
 $2n$
- Find the first three terms of the sequence with nth term $3n - 2$
 $1 \quad 4 \quad 7$
- Find the first three terms of the sequence with nth term $2n + 4$
 $6 \quad 8 \quad 10$

Substitution 1

- Find $3x + 5y$ when $x = 4$ and $y = 2$
 22
- Find abc when $a = 2$, $b = 3$ and $c = 5$
 30
- Find $7s - 2t$ when $s = 4$ and $t = -3$
 34
- Find $4(2n - 3)$ when $n = 5$
 28

Solving Equations 2

- $6(x - 2) = 24$
 $6 = x$
- $5(4y + 2) = 70$
 $4y + 2 = 14$
 $y = 3$
- $2x + 4 = 5x - 8$
 $4 = 3x - 8$
 $x = 4$
- $4x - 3 = 2x + 2$
 $2x = 5$
 $x = 2.5$
- $3(x + 6) = 4(x + 5)$
 $3x + 18 = 4x + 20$
 $-2 = x$

Factorise

- $3x + 33$
 $3(x + 11)$
- $5y + 25$
 $5(y + 5)$
- $4a - 18$
 $2(2a - 9)$
- $x^2 + 4x$
 $x(x + 4)$

Substitution 2

- Find $3x - 4y$ when $x = 5$ and $y = -3$
 27
- Find $a^2 + 3b$ when $a = 4$ and $b = -2$
 10
- Find $4x^2$ when $x = 3$
 36
- Find xy^2 when $x = 2$ and $y = -3$
 18
- Find $5x^2 + 2y^2$ when $x = 2$ and $y = 3$
 38

Ratio and Proportion Revision Mat

Equivalent Fractions, Decimals and Percentages

1) Complete the table below.

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{6}{10}$ $\frac{3}{5}$	0.6	60%
$\frac{3}{20}$	0.15	15%
$\frac{1}{4}$	0.25	25%

2) Would you rather have $\frac{3}{4}$, 70% or 0.72 of a pizza? Why?

$\frac{3}{4} = 75\%$ $0.72 = 72\%$
 $\frac{3}{4}!$

Simplify Ratio

- Simplify 16 : 8 $2:1$
- Simplify 11 : 22 $1:2$
- Simplify 24 : 12 $2:1$
- Simplify 50p : £2.50 $1:5$
- Simplify 4 : 8 : 12 $1:2:3$
- There are 32 pupils in a class. 20 of them are girls. What is the ratio of boys to girls in its simplest form?
 $20:12$
 $5:3$

Calculating with Decimals

- Which is the biggest?
3.013
3.0014
3.0013
- Calculate $2.5 + 0.37?$
 2.87
- Three friends compare their heights. Who is the tallest?
Anna is 1.58m
Chris is 1.62m
Drew is 1.47m
- Calculate the answer to 4.8 divided by 3
 1.6
- £8.40 is shared equally between three brothers. How much does each brother receive?
 2.8
- Aisha buys a magazine for £1.25 and chocolates for £2.99. She pays with a £10 note. How much change does she receive?
 $£5.72$

Divide into a Ratio

- Paul is making grey paint. He mixes black and white paint in the ratio 1 : 3. He makes 35 litres of grey paint. How much white paint does he use?
 $26.25L$
- The ratio of adults to children in the sports club is 5 : 2. There are 120 adults in the club. How many children are there?
 48
- Tim, Shula and Carol share the running costs of the car in the ratio 1 : 2 : 3. Last year it cost £1860 to run the car. How much did Carol pay?
 $£930$

Simplifying Fractions

- Simplify $\frac{9}{18}$ $\frac{1}{2}$
- Simplify $\frac{12}{20}$ $\frac{3}{5}$
- Simplify $\frac{16}{24}$ $\frac{2}{3}$
- Write as an improper fraction $2\frac{3}{4}$
 $\frac{11}{4}$
- Write as a mixed number $\frac{27}{6}$
 $4\frac{3}{6} = 4\frac{1}{2}$

Percentages of Amounts

- Calculate 40% of 600 ml.
 240 ml
- Calculate 67% of £120.
 $£80.40$
- Bobby went to the shop and there was a 20% sale. He was going to buy a top for £24. How much does he save?
 $£4.80$
- Sarah went to the shop and there was a 15% sale. She was going to buy a CD for £8. How much does she save?
 $£1.20$

Calculating with Fractions

Give your answers in their simplest form.

- $\frac{1}{2} + \frac{1}{4}$ $\frac{3}{4}$
- $\frac{5}{12} \times \frac{6}{15}$ $\frac{1}{6}$
- $\frac{16}{27} \div \frac{8}{9}$ $\frac{2}{3}$
- $2\frac{1}{3} - 1\frac{2}{3}$ $\frac{2}{3} - \frac{5}{3} = \frac{2}{3}$

Increasing and Decreasing by Percentages

- Claire improves her further distance for running by 19%. She used to be able to run 4km. How far can she run now?
 4.76 km
- Michael gets 42% better at kick ups. He used to be able to do 32. How many can he do now?
 45
- Ben loses 36% of his Instagram followers. He used to have 380. How many does he have now?
 243
- Red bull has 94% more sugar than Coke Life. Coke Life has 1.2g of sugar. How much does Red Bull have?
 $2.33g$


Probability Revision Mat

Probability

1) I roll a normal, 6 sided dice. What is the probability that I get:

- a) a 6? $\frac{1}{6}$
 b) an even number? $\frac{3}{6} = \frac{1}{2}$
 c) a number less than 2? $\frac{1}{6}$

2) The spinner shown in spun. What is the probability that the spinner lands on:

- a) red? $\frac{1}{4}$
 b) red or yellow? $\frac{2}{4} = \frac{1}{2}$
 c) not blue? $\frac{3}{4}$
- 

3) I put the letters from the word EXERCISE on cards, place them face down and then mix them up. I pick one card at random. What is the probability that the card is:

- a) an X? $\frac{1}{8}$
 b) a vowel? $\frac{4}{8} = \frac{1}{2}$
 c) not an E? $\frac{5}{8}$

4) The probability that I win a 100m race is $\frac{3}{10}$. What is the probability that I don't win the race?

$\frac{7}{10}$

5) The probability that it rains tomorrow is 0.14. What is the probability that it doesn't rain tomorrow?

0.86

Frequency Trees

200 adults go on an international flight. Each travel with a suitcase or a rucksack. 70 are men. 50 men and 115 women have suitcases.

1) Fill in the frequency tree diagram.



2) What is the probability that a passenger chosen at random is a man with a rucksack?

$\frac{20}{200} = \frac{1}{10}$

3) What is the probability that a passenger chosen at random is a woman with a suitcase?

$\frac{115}{200} = \frac{23}{40}$

Systematic Listing

1) Three friends Andrew, Billy and Chris are sitting in the same row at a concert. Show the different seating arrangements that are possible.

ABC BAC CBA
ACB BCA CAB

2) A restaurant menu allows a choice of one each of starter, main course and sweet. The choices are:

Starter	Main Course	Sweet
Melon ^M	Pasta ^P	Gateaux ^G
Soup ^S	Fish ^F	Ice-cream ^I
	Chicken ^C	

MPG MFG MCG
MPI MFI MCI
SPG SFG SCG
SPI SFI SCI

Sample Space Diagrams

Two fair dice are thrown together and the scores are added together.

1) Complete the sample space diagram showing all the possible outcomes

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

2) How many outcomes are there altogether? 36

3) What is the most likely score? 7

4) What are the least likely scores? 2 or 12

5) What is probability of scoring 10 or more? $\frac{6}{36} = \frac{1}{6}$

6) What is the probability of scoring less than 5? $\frac{6}{36}$

Relative Frequency

1) The probability that a biased dice will land on a five is 0.3. Megan is going to roll the dice 400 times. Work out an estimate for the number of times the dice will land on a five.

120

2) Jack sows 300 wildflower seeds. The probability of a seed flowering is 0.7. Work out an estimate for the number of these seeds that will flower.

210

Data Handling Revision Mat

Averages

1) Here are fifteen numbers.
10 12 13 15 15 17 19 20 20 20 21 25
25 25 25

a) Find the mode. **25**

b) Find the median. **20**

c) Work out the range. **15**

2) A rugby team played 7 games.
Here is the number of points they
scored in each game.
3 5 8 9 12 12 16

a) Find the median. **9 10.5**

The rugby team played another game.
They scored 11 points.

b) Find the median number of
points scored in these 8 games.

10 11

3) The mean of eight numbers is 41
The mean of two of the numbers is 29
What is the mean of the other six
numbers?

$$41 \times 8 = 328$$

$$2 \times 29 = 58$$

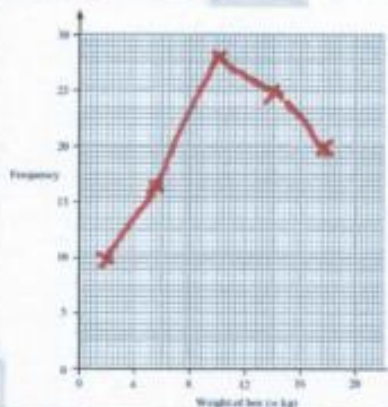
$$328 - 58 = 270$$

$$\frac{270}{6} = 45$$

Frequency Polygons

The table shows some information
about the weights, in kg, of 100 boxes.
Draw a frequency polygon to show this
information.

Weight of box (w kg)	Frequency
$0 < w \leq 4$	2
$4 < w \leq 8$	6
$8 < w \leq 12$	10
$12 < w \leq 16$	14
$16 < w \leq 20$	18



Stem and Leaf

Here are the ages, in years, of 15
students.

~~18 18 20 25 31~~
~~33 21 17 28 20~~
~~42 18 28 37 22~~

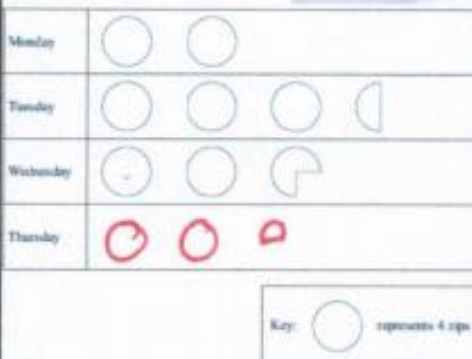
Show this information in an ordered
stem and leaf diagram.

1	7 8 8 9
2	0 0 1 2 3 5 9
3	3 7 7
4	2

Key: **4|12 = 42**

Pictograms

The pictogram shows the numbers of
zips sold in a shop on Monday, on
Tuesday and on Wednesday.



Write down the number of zips sold on
Wednesday. **11**

9 zips were sold on Thursday.
Complete the pictogram.

Pie Charts

Harry asked each student in his class
how they travelled to school that day.
He used the results to draw this pie
chart.



How did most of the students travel to
school? **WALK**

Harry asked a total of 24 students.
Work out the number of students who
cycled to school. **6**

Averages from Frequency Tables

Bob asked each of 40 friends how
many minutes they took to get to work.
The table shows some information
about his results.

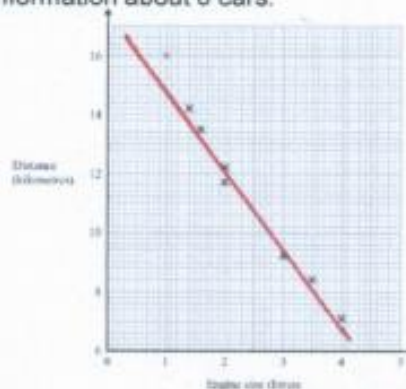
Time taken (m minutes)	Frequency
$0 < w \leq 10$	5 × 3 = 15
$10 < w \leq 20$	15 × 8 = 120
$20 < w \leq 30$	25 × 11 = 275
$30 < w \leq 40$	35 × 9 = 315
$40 < w \leq 50$	45 × 9 = 405

Work out an estimate for the mean
time taken.

$$\frac{1130}{40} = \underline{\underline{28.25}}$$

Scatter Graphs

The scatter graph shows some
information about 8 cars.



What type of correlation does the
scatter graph show? **negative**

A car has an engine size of 2.5 litres.
Estimate the distance travelled on one
litre. **10.5**