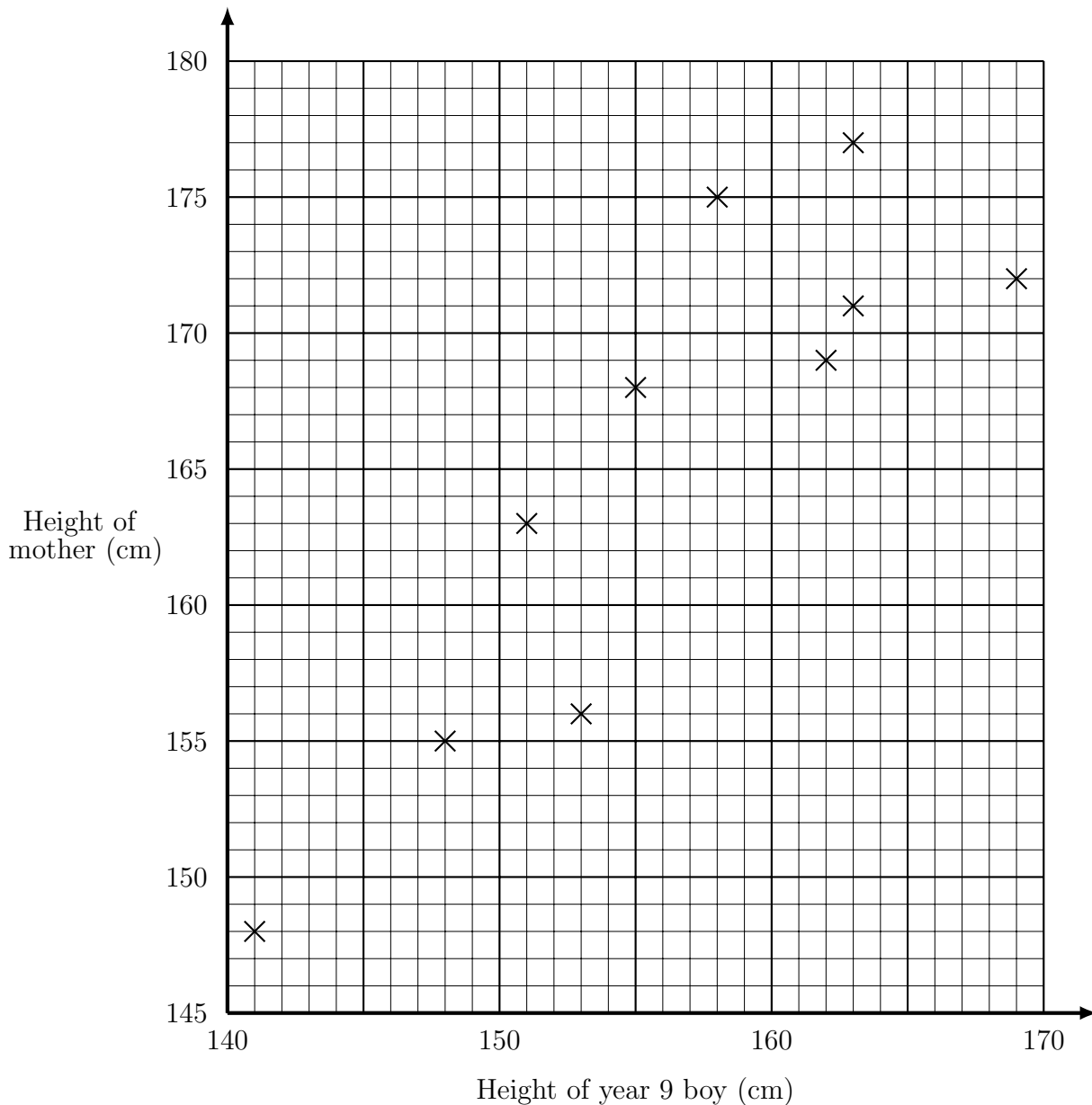


1. The scatter graph shows some information about the height of 10 year nine boys and their mother's height.



A different mother of a boy in year 9 is 174 cm tall.

Estimate the height of her son.

..... cm

2. (a) Write 0.000 000 33 in standard form

(a) .....

3. Write these numbers in order of size.

Start with the smallest number.

$0.0583 \times 10^4$

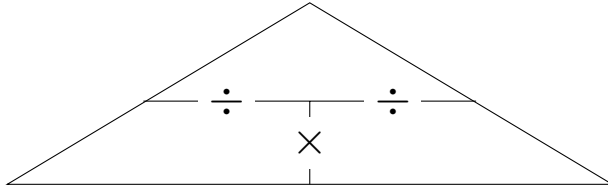
$5.83 \times 10^{-2}$

$58.3 \times 10^3$

$0.583$

.....

4. A small pure gold crown was found in a box of junk by a pensioner.  
The crown weighs 100 grams and the density of gold is  $19.3 \text{ g/cm}^3$   
Calculate the volume of gold in the crown.  
Give your answer to 1 decimal place.  
You may use this proportional formula triangle if it helps you.



.....  $\text{cm}^3$

5. Gill and Henry share £48 in the ratio 3 : 5  
Work out how much each person gets

Gill £ .....

Henry £ .....

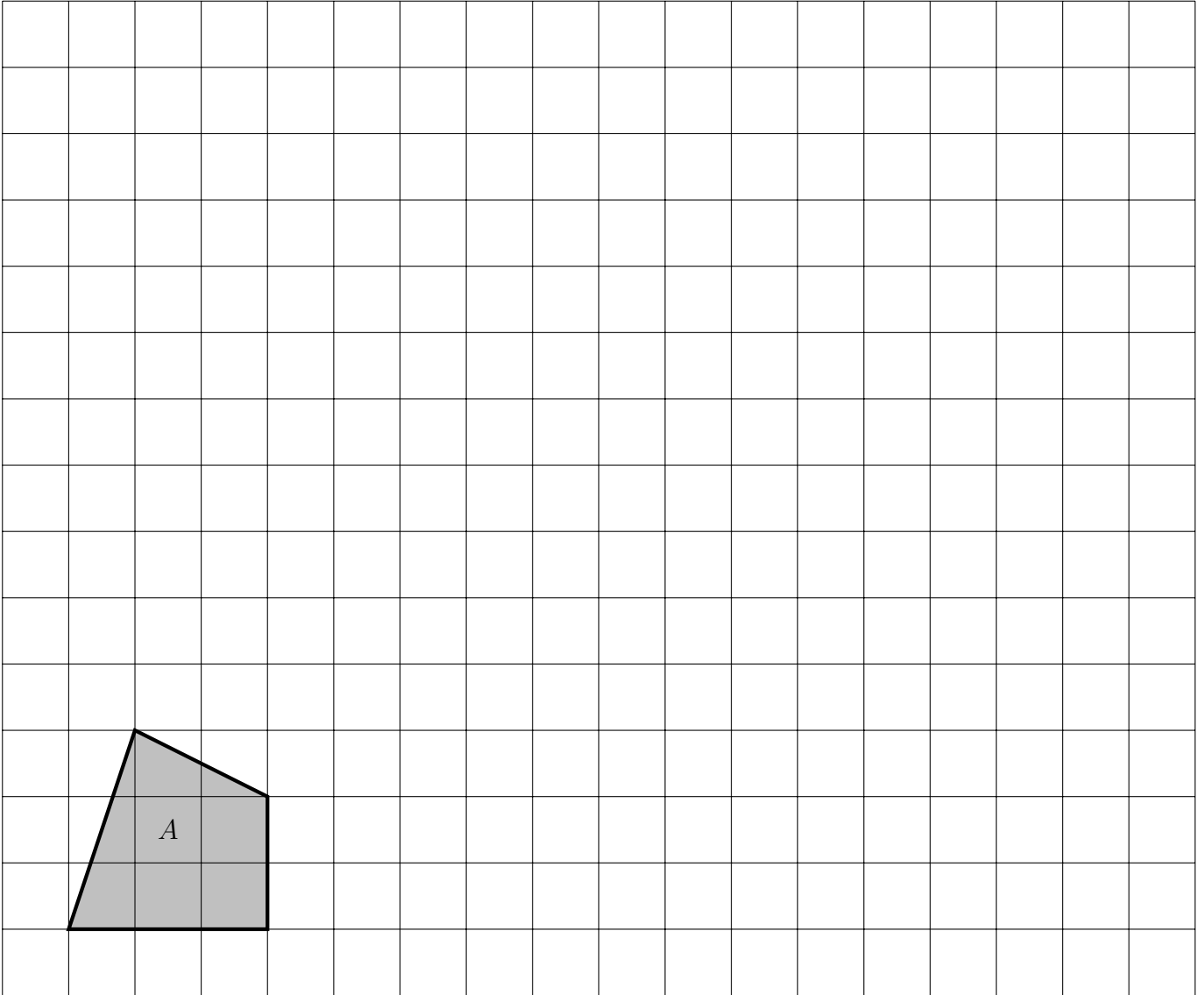
6. Alfie and Blossom share some money in the ratio 2 : 3  
Alfie gets £50  
Work out how much Blossom should have.

£ .....

7. (a) Write  $0.053 \times 10^{-5}$  in standard form

(a) .....

8.



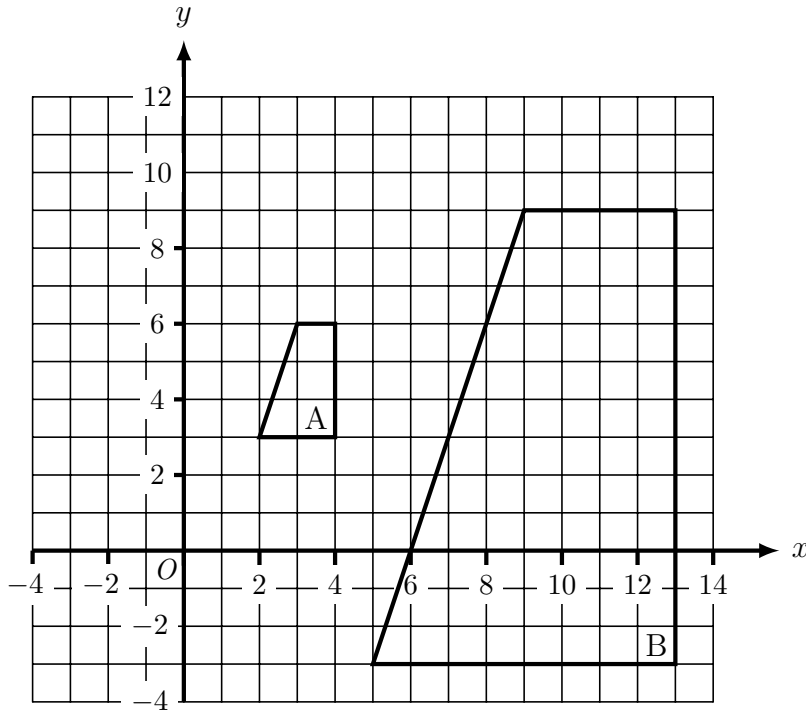
Draw an enlargement, scale factor 3, of shape A.

9. (a) Work out the value of  $5 \times 10^{-3} \times 6 \times 10^8$

Give your answer in standard form.

(a) .....

10. Describe fully the transformation that maps shape A onto shape B.



.....  
 .....

11. Two students each spin a biased spinner a number of times.

The table shows the frequency of each outcome that each student got.

	A	B	C	D	E
Lisa	21	19	23	15	22
Marina	9	10	10	12	9

The spinner will be spun one more time.

(a) Will Lisa or Marina's results give the best estimate for the probability that the spinner will land on an E?

Justify your answer.

.....  
 .....

(b) Use all the results to work out a better estimate for the probability that the spinner will land on an E.

(b) .....

12. (a) Work out  $\frac{5}{6} \times \frac{3}{4}$

Give your answer in its simplest form.

(a) .....

13. (a) Work out  $\frac{2}{7} \div \frac{4}{5}$

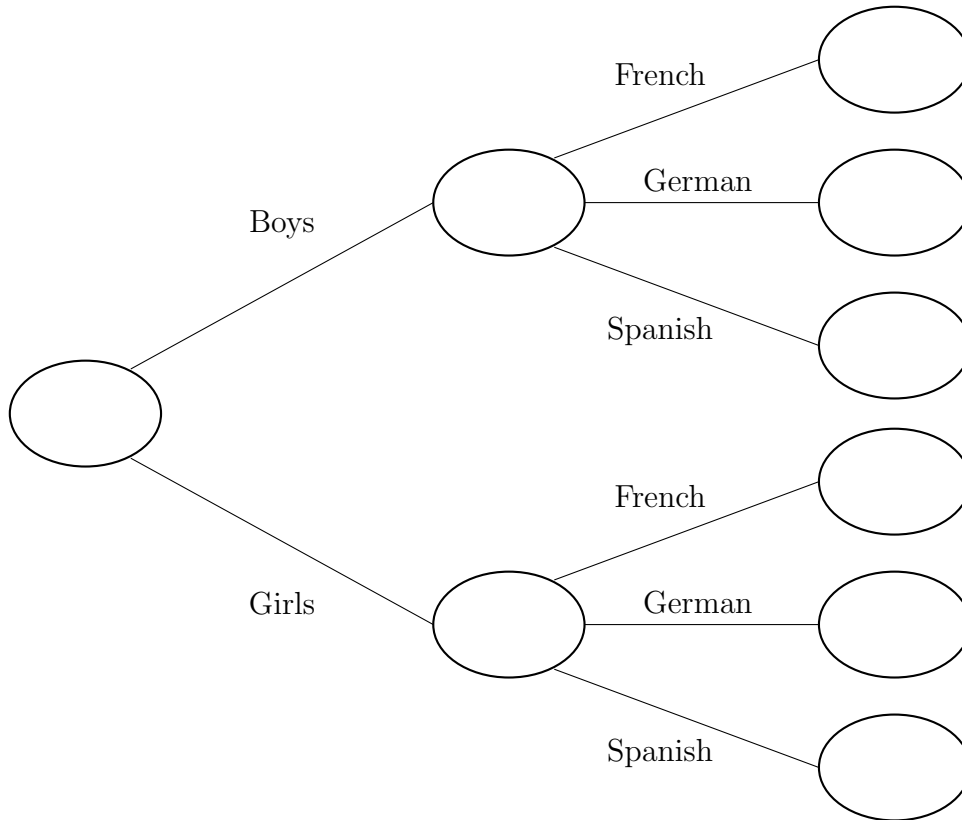
Give your fraction in its simplest form.

(a) .....

14. Solve  $6x - 7 = 23$

$x =$  .....

15. There are 180 year 9 students studying a language.  
 96 of the students are boys.  
 29 boys study French.  
 42 of the girls study Spanish.  
 11 out the the 28 students studying German are boys.  
 Use this information to complete the frequency tree.



16. Solve  $8w + 1 = 5w + 7$

$w = \dots\dots\dots$

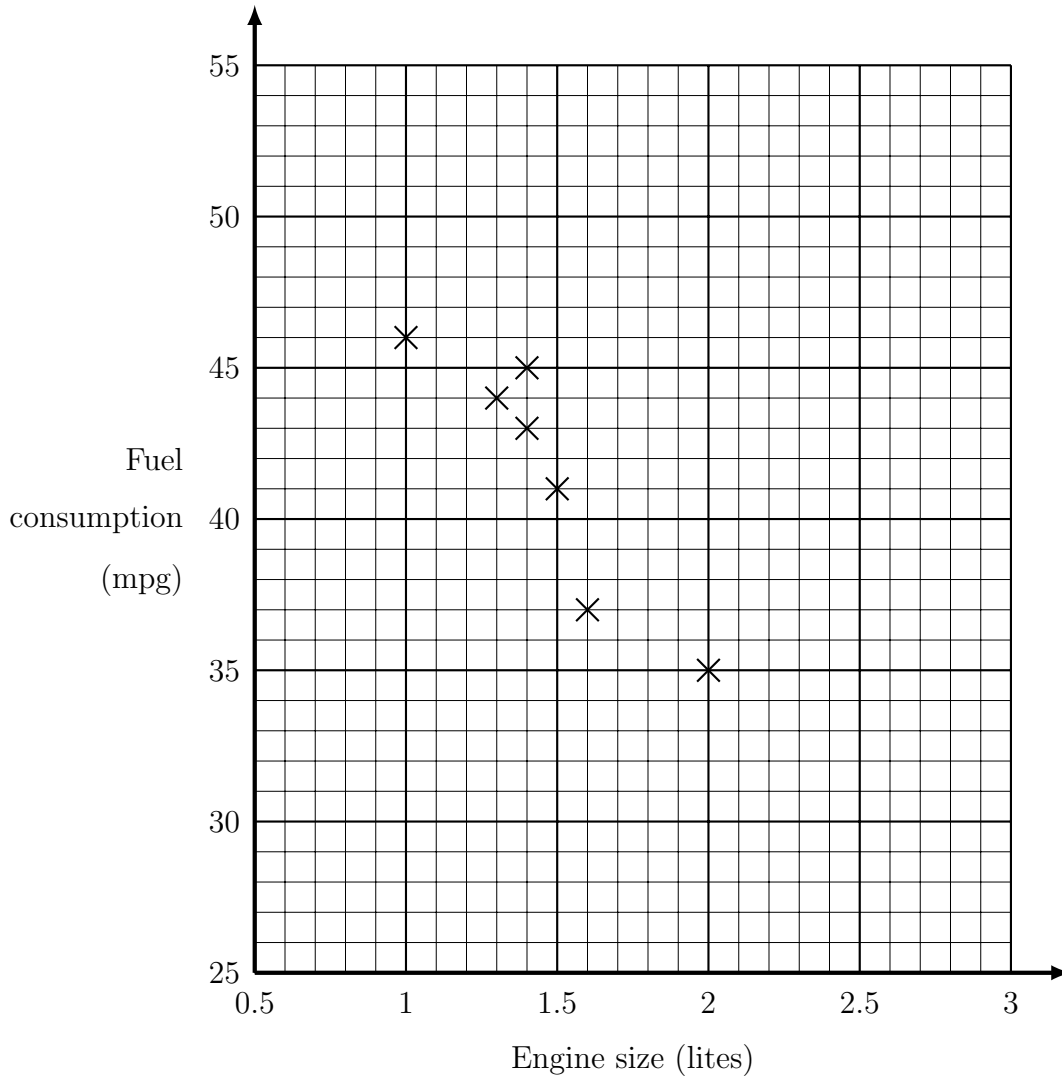
**Stuck?** try these

17. The probability that a raffle ticket will win a prize is 0.1  
 Work out the probability that a raffle ticket will **not** win a prize.

17.  $\dots\dots\dots$

18. The scatter graph shows some information about 7 second hand cars.

The graph shows the engine size in litres and the fuel consumption, in miles per gallon (mpg) of each car.



Here is the information for 3 more second hand cars.

Engine size (lites)	1.1	2.5	1.2
Fuel consumption (mpg)	51	28	48

- (a) Complete the scatter graph to show the information in the table.
- (b) What kind of correlation does the scatter graph show?

(b) .....

19. (a) Write  $9.0909 \times 10^2$  as an ordinary number

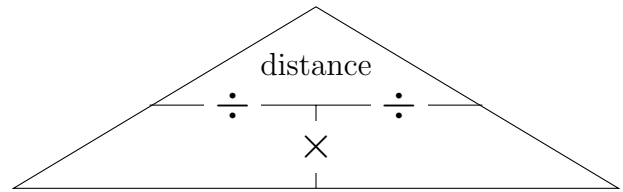
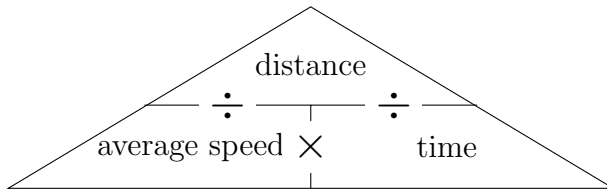
(a) .....

20. (a) Write  $8.2 \times 10^{-5}$  as an ordinary number

(a) .....



21. Here are two proportional formula triangles



(i) Write down a formula to calculate distance

distance = .....

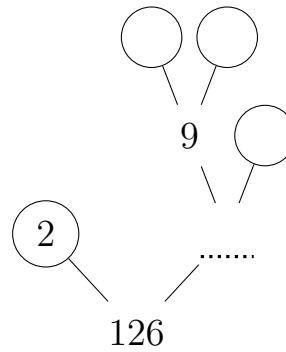
(ii) Calculate the distance travelled when

average speed = 7.5 m/s

time = 320 seconds

..... metres

22. (i) Complete this prime factor tree.



(ii) Write 126 as a product of its prime factors.

22. ....

23. (a) Work out  $\frac{2}{3} \times \frac{1}{7}$

(a) .....

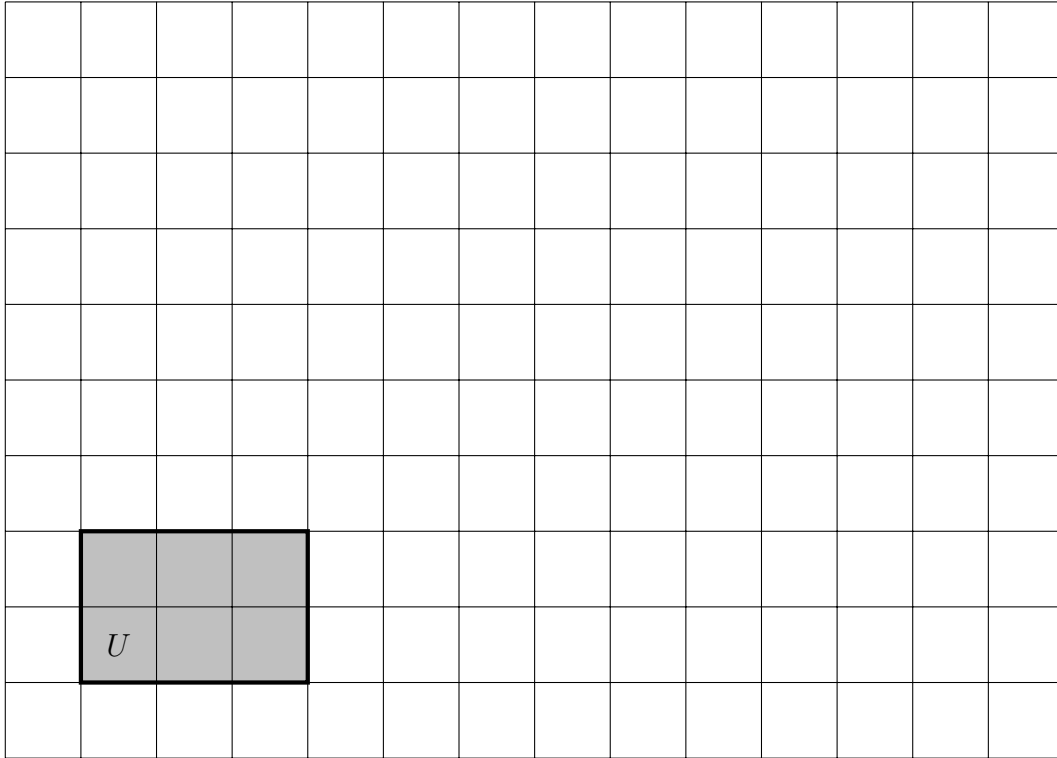
24. (a) Work out  $\frac{3}{5} \div \frac{5}{7}$

(a) .....

25. (a) Write 218 000 in standard form

(a) .....

26.



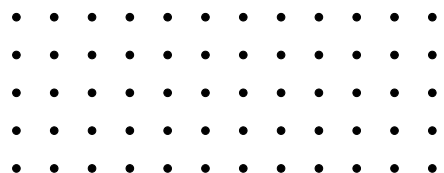
Draw an enlargement of shape U scale factor 3.

27. Complete the enlargement of the shaded shape with a scale factor of 2

(i) Write down the edge lengths.  
 (ii) Work out the EDGE lengths.  
         edge  $\times$  scale factor = EDGE  
 (iii) Complete the enlarged shape.

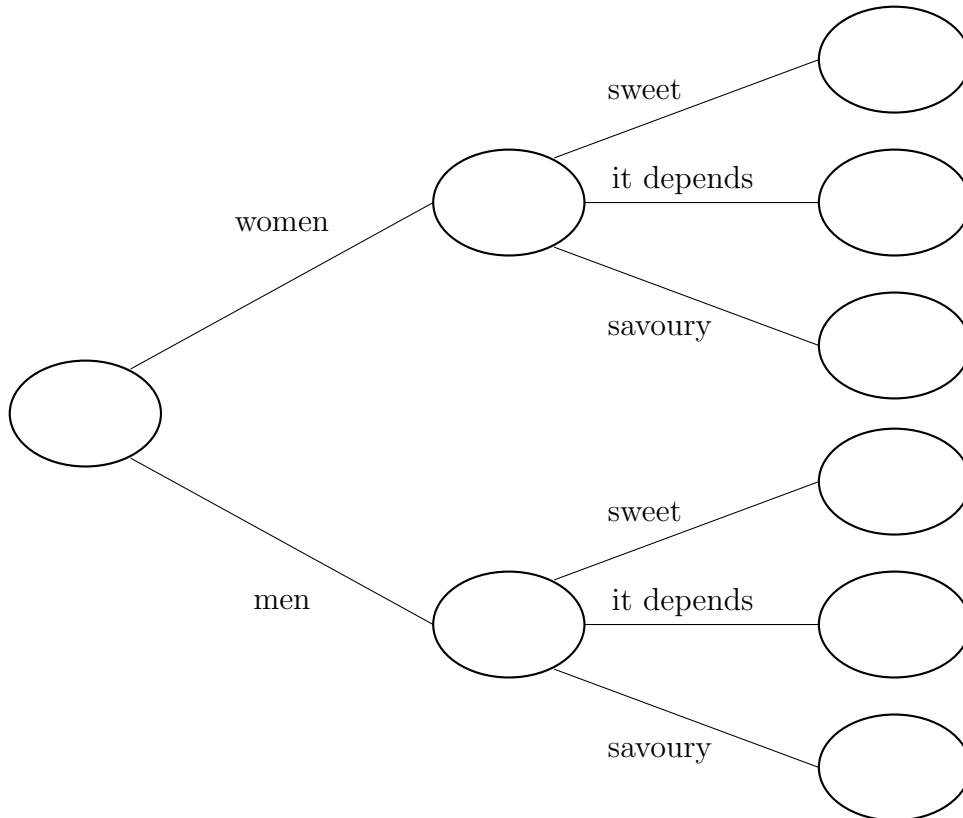
28. Complete  $\frac{2}{3} = \frac{\quad}{9}$

You may use this dotted paper to draw fractions



29. 60 customers in a coffee shop answered a survey about their favourite type of food.  
 28 men answered the survey.  
 9 women say it depends,  
 10 women say savoury,  
 7 men say sweet,  
 18 men say savoury.

(a) Use this information to complete the frequency tree.



One of the customers is chosen at random.

(b) Work out the probability of that this customer says sweet.

(b) .....

30. Write  $\frac{8}{10}$  in its simplest form.

30. ....

31. Write  $\frac{18}{27}$  in its simplest form.

31. ....

32. Write  $\frac{12}{42}$  in its simplest form.

32. ....

33. 100 students are asked if they walked to school and if they were late to school yesterday.

15 of the students walked to school.

17 of the students were late.

71 of students **didn't** walk to school and were **not** late.

Use this information to complete the table below.

	Walk to school	<b>Didn't</b> walk to school	Total
Late			
Not late			
Total			100

34. Solve  $n + 7 = 25$

 $n = \dots\dots\dots$ 

35. Solve  $\frac{t}{3} = 6$

 $t = \dots\dots\dots$ 


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**Harder?** try these

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36. A plane flies 180 km at an average speed of 105 m/s

How long does this journey take.

Give your answer to the nearest minute.

..... minutes