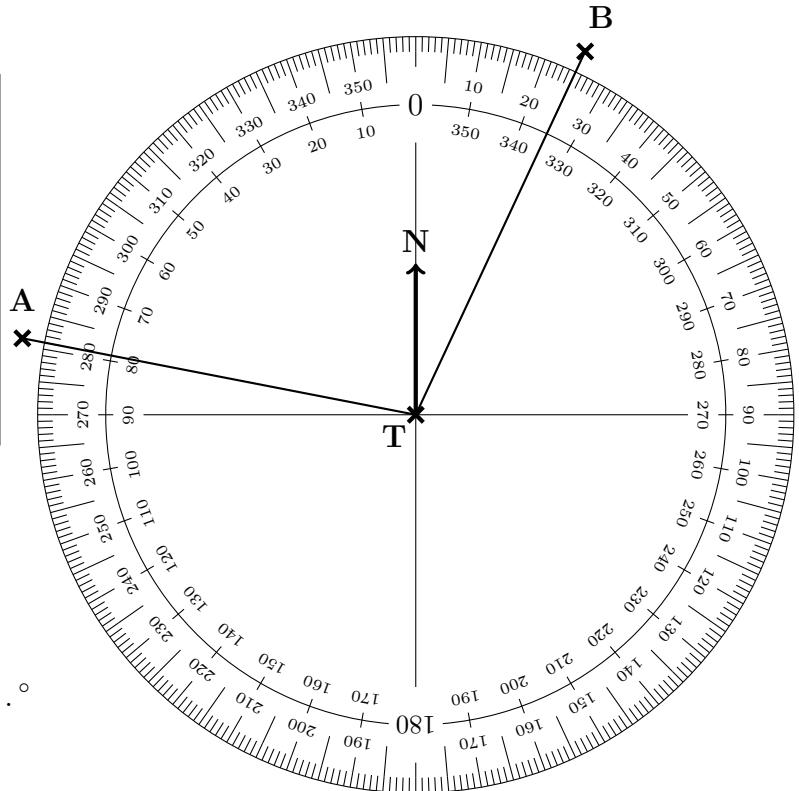


1. The diagram shows an angle measurer ready for measuring bearings from a tower T.

Centre at the "from" letter T
 The 0 (zero) line faces North (N)
 Measure clockwise
 (use the outside numbers)
 Write down 3 digits
 (e.g. 31 is 031°)



Write down

(a) the bearing of A from T°

(b) the bearing of B from T°

2. Write 210 as a product of its prime factors

2.

3. Factorise $5x - 10$

3.

4. Factorise $3y^2 + 6y$

4.

5. The frequency table shows information about the number of people in cars which stop at a traffic lights one weekend.

Number of people	Frequency
1	28
2	13
3	2
4	7
5	3
6	5
7	2

- (a) Write down the range.

(a)

- (b) Write down the mode number of people in the cars.

(b)

- (c) Write down the median number of people.

(c)

6. (a) Write 60 as a product of its prime factors.

(a)

- (b) Find the Highest Common Factor (HCF) of 48 and 60

(b)

7. The frequency table shows information about the number of books borrowed by 39 library visitors.

Number of books	Frequency	
0	5	
1	9	
2	7	
3	11	
4	1	
5	0	
6	2	
7	1	
8	2	
9	1	

Work out the mean number of books borrowed.

Give your answer to 1 decimal place.

7.

8. Factorise $6x^2y - 4xy$

8.

9. Factorise $x^2 - 100$

9.

10. Expand $y(y - 3)$

10.

11. Expand and simplify $(p + 7)(p - 5)$

11.

12. Expand and simplify $(x - 3)(x - 4)$

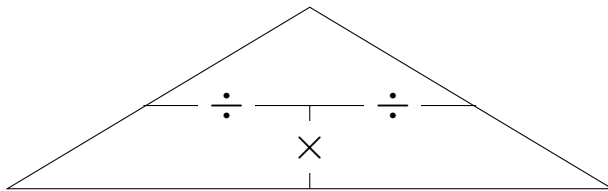
12.

13. Warren drives 2700 metres at an average speed of 8.2 m/s

How many seconds does Warren's drive take?

Give your answer to 1 decimal place.

You may use this proportional formula triangle if it helps you.



..... seconds

Harder? try these

14. There are 32 people waiting for a bus.

The mean distance walked by each person to the bus stop is 275 metres.

Work out the total distance walked by the people to the bus stop.

Give your answer in kilometres.

..... km

Stuck? try these

15. Expand $3(x - 1)$

15.

16. The frequency table shows information about the number of eggs in some osprey bird nests seen through “Nature Watch” web cams.

Number of eggs	Frequency	
0	3	
1	5	
2	11	
3	12	
4	4	

- (a) Write down the mode number of eggs.

(a)

- (b) Write down the median number of eggs.

(b)

17. The frequency table shows information about the number of people in cars which stop at a traffic lights one weekend.

Number of people	Frequency	Space for calculation
1	28	$1 \times 28 = \dots$
2	13	$2 \times 13 = \dots$
3	2	
4	7	
5	3	
6	5	
7	2	
total number of	→	← total number of

- (a) Write down the number of cars which stop at the traffic lights on the weekend.

(a)

- (b) Write down the total number of people in the cars.

(b)

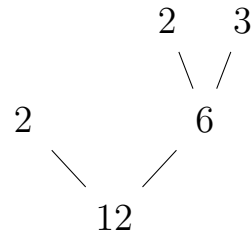
- (c) Write down the mean number of people.

Give your answer to 1 decimal place.

(c)

18. Here is a prime factor tree.

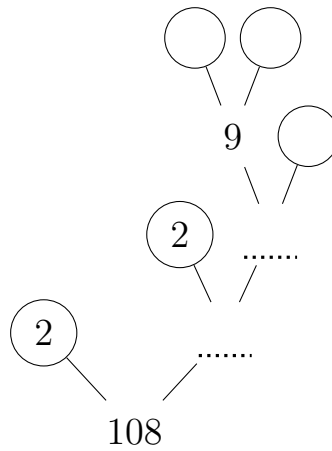
(i) Circle the leaves (prime factors)



(ii) Write 12 as a product of its prime factors

18.

19. (i) Complete this prime factor tree.



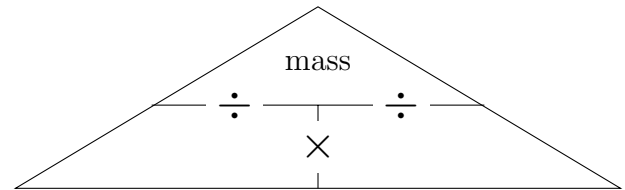
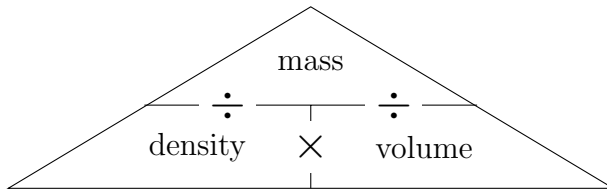
(ii) Write 108 as a product of its prime factors.

19.

20. Write 180 as a product of its prime factors

20.

21. Here are two proportional formula triangles



(i) Write down a formula to calculate mass

mass =

(ii) Calculate the mass of a block of ice when

$$\text{density} = 0.92 \text{ g/cm}^3$$

$$\text{volume} = 12 \text{ cm}^3$$

..... grams