

Non-calculator Questions

1. Evaluate $8.1 - 19.4 \div 4$
2. Evaluate $5.7 + 3.9 \times 4$
3. Evaluate 35% of £850
4. Find $\frac{3}{8}$ of 544
5. $f(x) = x^2 - 2x$, evaluate $f(-2)$
6. $f(x) = 9 - 6x$
 - (a) Evaluate $f(-3)$
 - (b) Given that $f(t) = 11$, find t
7. Factorise $6x^2 - 9x$
8. Factorise $4a^2 - 9b^2$
9. Factorise $3x^2 - 13x - 10$
10. Express $\frac{15x - 20}{9x^2 - 16}$ in its simplest form
11. Remove the brackets and collect like terms $(3a - b)(2a - 5b)$
12. Simplify $4(3x - 2) - 5(4x + 1)$
13. Remove the brackets and simplify $(3y - 4)^2$

14. Change the subject of the formulae

a) $Y = \frac{3(2v - w)}{5}$ Change the subject of the formula to v .

b) $P = \frac{1}{3}(m - s)$ Change the subject of the formula to m

15. A furniture maker investigates the delivery times, in days, of two local wood companies and obtains the following data.

<i>Company</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Lower Quartile</i>	<i>Median</i>	<i>Upper Quartile</i>
Timberplan	16	56	34	38	45
Allwoods	18	53	22	36	49

- a) Draw an appropriate statistical diagram to illustrate these two sets of data.
- b) Given that consistency of delivery is the most important factor, which company should the furniture maker use? Give a reason for your answer.

16. Jamie conducted a survey.

He asked his classmates how they had travelled to school that day.

Here are their replies.

Walk 13

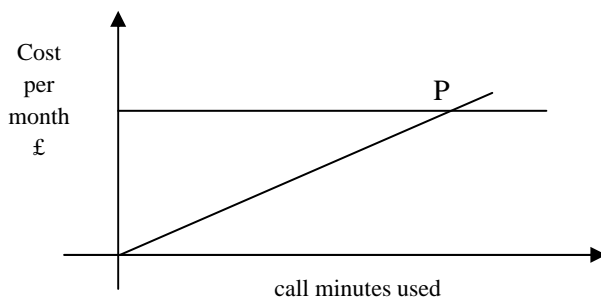
Bus 9

Car 6

Cycle 2

Draw an appropriate statistical diagram to illustrate this information

17. A mobile phone company is offering two charging plans.



- a) All-in calls and texts £25 per month.
- b) No monthly rental and 10p per minute for calls

Write down the coordinates of P.

18. When microprocessors are made, it is known that in any batch, 15% are defective.
- What is the probability of picking a microprocessor that is **NOT** defective
 - A batch of 5000 microprocessors are produced. How many would be expected to have **NO** defects.

19. A box contains **5 red, 6 green, 7 blue and 2 yellow** coloured pencils.

Jenny picks one out of the box

- What is the probability that it is a **green pencil**
- She does **NOT** replace the pencil, but draws another one
What is the probability that this is a blue pencil

20. MacAdams are offering a special price on the MegaGames Machine XR2.

They are offering it at 30% off the list price.

MacAdams price is: £ 105 . What is the list price ?

21. A wooden toy box is prism-shaped as shown in figure 1.

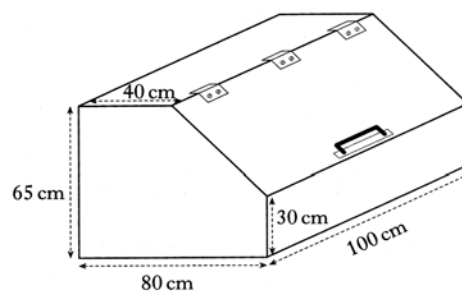


figure 1

The uniform cross-section of the box is as shown in figure 2.

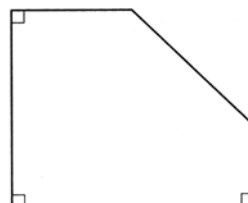


figure 2

Calculate the volume of the box in **cubic metres**.

22 Alastair McIver is planning his garden. Overall the size is 8m by 11m.

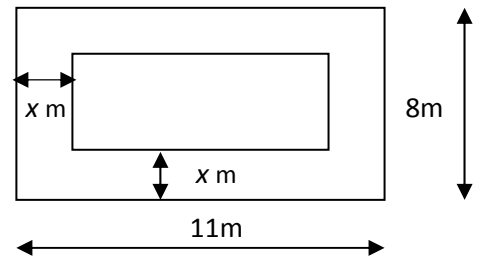
He decides to have a lawn with a path around it.

The width of the path is x metres.

i) Show that the area of the lawn is given by:

$$A = 4x^2 - 38x + 88 \text{ m}^2$$

ii) If Mrs McIver wants the lawn to be 40 m^2
Find a possible value for x .



23 A container is shown to the right
with the dimensions marked in centimetres

i) Show that the volume of the box
is $5x^2 + 10x \text{ cm}^3$

ii) If the volume of the box is 315 cm^3
Find the value of x
and hence find the dimensions of the box.

