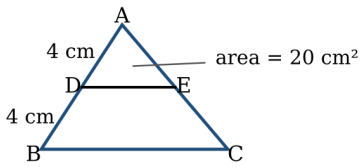
Day 148 **S Tier 10-a-day**

1 The side length of a square is decreased by 30%.
Work out the percentage change in the area of the square.

2 Factorise fully $(x + 3)^2 - 25$

3 In the diagram, DE is parallel to BC. AD = 4 cm, DB = 4 cm and the area of triangle ADE is 20 cm^2.
Work out the area of the trapezium DBCE.
The diagram is not drawn accurately.



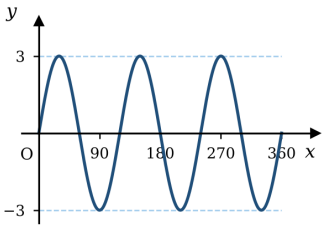
4 Work out $(2.55 \times 10^{-7}) \div (1.5 \times 10^{7})$
Give your answer in standard form.

5 The table shows information about 115 children.
(a) A child who chooses tennis is chosen at random. Work out the probability that this child is a boy.
(b) Two of the 115 children are chosen at random. Work out the probability that both are boys.

	Tennis	Football	Swimming
Boys	26	19	10
Girls	23	29	8

Day 148 **S Tier 10-a-day**

6 The diagram shows the graph of y = a sin bx, where a and b are positive integers.
(a) Write down the value of a and the value of b.
(b) Work out the value of y when x = 170°.



7 The table gives information about the times of some people.
Work out an estimate for the mean time.
Give your answer correct to 1 decimal place.
(Calculator)

Time, t (minutes)	Frequency density
$0 < t \leq 10$	1
$10 < t \leq 30$	0.2
$30 < t \leq 60$	0.2
$60 < t \leq 100$	0.8

8 Dina invested £18,500 in a savings account for 2 years.
Compound interest was paid at a fixed rate per year.
At the end of the 2 years the account held £19,626.65.
Work out the annual rate of interest.
(Calculator)

9 ABCD is a rectangle with AB = 10 cm and AD = 15 cm.
A point P inside the rectangle is such that AP ≤ 10 cm and P is nearer to A than to B.
Work out the area of the region in which P can lie. Give your answer in terms of π and surds.

10 A is the point (−3, −4) and B is the point (−5, 4).
Find an equation of the perpendicular bisector of AB.
Give your answer in the form y = mx + c.