Day 113	S Tier 10-a-day
1 A concrete slab in the shape of a cuboid weighs 240 N. Its smallest face has area 150 cm^2. Its largest face has area 250 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the concrete slab can exert on the ground, in N/m^2.	
2 Work out $(5 \times 10^{-5}) \div (1.25 \times 10^{7})$ Give your answer in standard form.	
3 Make t the subject of $T = \frac{3t + 4}{t - 6}$	
4 A fair 4-sided dice and a fair 6-sided dice are each thrown once. The first score and the second score are recorded. (a) Work out the probability that the product is greater than 8. (b) Given that the first number is even, work out the probability that the product is greater than 8.	
5 Work out the exact value of $\cos 60° \times \tan 30°$ Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	

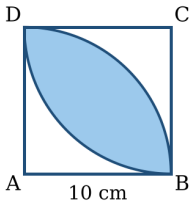
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6 Evan invests £11,000 at 4% per year compound interest.
After how many whole years will the investment first be worth more than £15,600?
(Calculator)

7 Sofia read $\frac{7}{8}$ of a book on Saturday.
On Sunday she read $\frac{2}{5}$ of the pages that were left.
She still had 42 pages to read.
How many pages are in the book?

8 Ravi invests £3,000 for 3 years at 4% per year simple interest.
Hana invests £3,000 for 3 years at 4% per year compound interest.
Work out how much more interest Hana earns than Ravi.
Give your answer to the nearest penny.
(Calculator)

9 ABCD is a square of side 10 cm.
BD is an arc of a circle with centre A and an arc of a circle with centre C.
Work out the area of the shaded region. Give your answer in terms of π.



10 A circle has equation $(x + 2)^2 + (y - 4)^2 = 85$.
The point P(4, 11) lies on the circle.
Find an equation of the tangent to the circle at P.
Give your answer in the form ax + by = c, where a, b and c are integers.