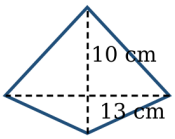
Day 299 **A Tier 10-a-day**

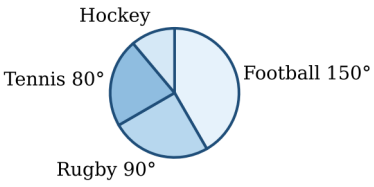
1 (a) Between which two consecutive whole numbers does $\sqrt{113}$ lie?
(b) Work out $\sqrt{25} \times \sqrt[3]{8}$

2 The diagram shows a kite.
The diagonals are 13 cm and 10 cm and cross at right angles.
Work out the area of the kite.
The diagram is not drawn accurately.



3 Here are the first five terms of a quadratic sequence.
$-5, -4, -1, 4, 11$
(a) Find an expression for the nth term.
(b) Work out the 15th term.

4 The pie chart shows how some students chose a sport.
8 students chose tennis.
(a) Work out the angle for hockey.
(b) How many students chose hockey?



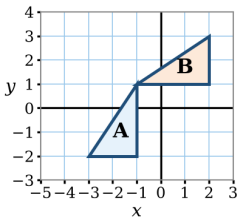
5 Work out $\sqrt{2.56 \times 10^{10}}$
Give your answer in standard form.

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6 £1 = €1.35.
(a) Change £260 to euros.
(b) Change €54 to pounds.

7 The graph of y = f(x) has a maximum point at (2, −5).
Write down the coordinates of the turning point of the graph of
(a) y = f(x) − 4
(b) y = f(−x)

8 Describe fully the single transformation that maps shape A onto shape B.



9 Jug A contains 39 litres of a mixture of orange juice and lemonade in the ratio 7 : 6.
Jug B contains 16 litres of a mixture of orange juice and lemonade in the ratio 7 : 1.
The contents of both jugs are mixed together.
Work out the ratio of orange juice to lemonade in the mixture. Give your answer in its simplest form.

10 Make x the subject of $y = \frac{2x - 5}{2x + 3}$