Day 314 **A Tier 10-a-day**

1 4 identical circles of radius 9 cm fit exactly inside a rectangle.
The circles touch each other and the sides of the rectangle. (Calculator)
Work out the area of the shaded region.
Give your answer to 3 significant figures.



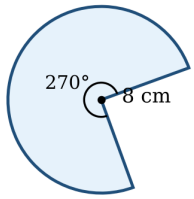
2 The stem and leaf diagram shows the ages of 15 people.
Key: 2 | 1 represents 21 years
(a) Work out the median age.
(b) Work out the interquartile range.

Stem	Leaf
2	1 5 6 7
3	3 4 8 9
4	0 1 3
5	1 4 8 9

3 Hassan has £528.
Hassan spends $\frac{1}{6}$ of the money on a bike and $\frac{1}{2}$ of the money that is left on a helmet.
How much money does Hassan have left?

4 Triangle STU: angle S = 55°, angle T = 35°, ST = 5 cm.
Triangle UVW: angle U = 55°, angle V = 35°, UV = 10 cm.
Are the two triangles congruent?
Give a reason for your answer.

5 The line L has equation $y = \frac{2}{3}x + 7$
Find the equation of the line that is perpendicular to L and passes through the point $(6, -13)$.

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6 The diagram shows a sector of a circle of radius 8 cm. Work out the perimeter of the sector. Give your answer in terms of π. The diagram is not drawn accurately. 	
7 A bag contains 5 red counters and 5 blue counters. Three counters are taken at random without replacement. Work out the probability that at least one of the three counters is blue.	
8 Solve $x^2 + 8x + 12 > 0$	
9 A gym charges a joining fee of £20 and then £18 each month. (a) Write a formula for the total cost, £C, after n months. (b) Chloe pays £236 in total. Work out the number of months.	
10 A cyclist travels 560 metres in 16.5 seconds. The distance is correct to the nearest 10 metres and the time to the nearest 0.1 second. (a) Work out the upper bound and the lower bound of the speed in m/s. (b) Write the speed to a suitable degree of accuracy. Give a reason for your answer.	