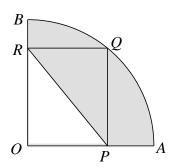1. Find the smallest whole number between 1 and 100 that is divisible by 12 and by 30.

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2. Find the value of

$$\left(1 + \frac{1}{2}\right) \times \left(1 + \frac{1}{3}\right) \times \left(1 + \frac{1}{4}\right) \times \ldots \times \left(1 + \frac{1}{2014}\right)$$

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3. The diagram shows a quadrant *OAB* of a circle with centre *O* and radius 7 cm. Given that the perimeter of the rectangle *OPQR* is 20 cm, find the perimeter of the shaded region. (Take π to be $\frac{22}{7}$.)

4.   The average mass of a duck and a chicken is 4 kg. The duck is 1.2 kg heavier than the chicken. Find the mass of the duck.

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5.   A man travelled at 120 km/h for the first half of a 12-km journey. Then he travelled at 60 km/h for the rest of his journey. What is his average speed for the whole journey?

_____

6.   Amy buys an item for a 20% discount during a sale, but she still needs to pay a 5% GST (Goods and Services Tax). She is given two options.
Option A: 20% discount first, then add 5% GST
Option B: Add 5% GST first, then 20% discount
Which option is cheaper for Amy? Or does it not matter?

7.   How many digits are there before the 50th '8' of the following number?

                           85855855585555855555…

_____

8.   Find the next term of the following sequence: 1, 4, 9, 7, 7, 9, 4, 1, 9, 1, …

_____

9.   Given that 5! means $5 \times 4 \times 3 \times 2 \times 1$, find the last two digits of 2014!.

10. There were 210 students in the hall. $\frac{2}{5}$ of the boys and $\frac{1}{3}$ of the girls wore T-shirts. If there were 78 students in the hall who wore T-shirts, how many boys were in the hall?

End of paper

	Solutions
1.	60
2.	$\dfrac{2015}{2}$
3.	22cm
4.	4.6kg
5.	80km/h
6.	Does not matter
7.	1274
8.	4
9.	00
10.	120