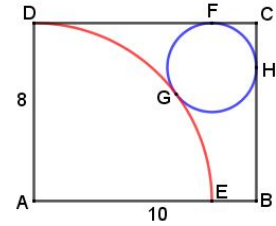


1. $ABCD$ is an 8×10 rectangle. A quarter-circle with center A is drawn and passes through D . A second circle is drawn so that it touches BC , CD , and the first circle externally.

What is the area of the second circle?

- (a) 2π (b) 3π (c) 4π
 (d) 5π (e) 8π



2. Ryan is a police officer responsible for the investigation of a number of car accidents shown below:

- 30 accidents involving alcohol consumption and excessive speed,
- 56 accidents involving alcohol consumption,
- 14 accidents involving excessive speed but not alcohol consumption, and
- 18 of the accidents involved neither alcohol consumption nor excessive speed.

How many accidents were investigated?

- (a) 58 (b) 88 (c) 98 (d) 100 (e) 118

3. In the following equation, distinct letters represent different single-digit numbers.

$$\begin{array}{r} COR \\ ONA - \\ \hline 19 \end{array}$$

Find one of the possible values of $C + O + R + O + N + A$.

- (a) 15 (b) 20 (c) 25 (d) 32 (e) 40

4. A building has 10 floors with 5 apartments on each floor. Each apartment is for one family. In how many ways can 50 families occupy the building if four of the families are related and must live on the same floor?

- (a) $2300 \times 45!$ (b) $460 \times 45!$ (c) $2300 \times 46!$
 (d) $460 \times 46!$ (e) $4600 \times 45!$