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- 1 **Paul** and **Samuel** are playing the same computer game on their own computers. At the start of the game, there are a certain number of targets on the screen. The targets will disappear from the screen one by one at a constant rate. **Paul** can shoot down the targets twice as fast as **Samuel**. Given that at the end of the game, **Paul** shot down 54 targets while **Samuel** shot down 36 targets. Find the number of targets at the start of the game.

[Omission of essential working will result in loss of marks]

- 2** How many whole numbers from **1** to **1000** can be expressed as the difference of the squares of two whole numbers? [ *Note* : 0 is a whole number.]

**[Omission of essential working will result in loss of marks]**

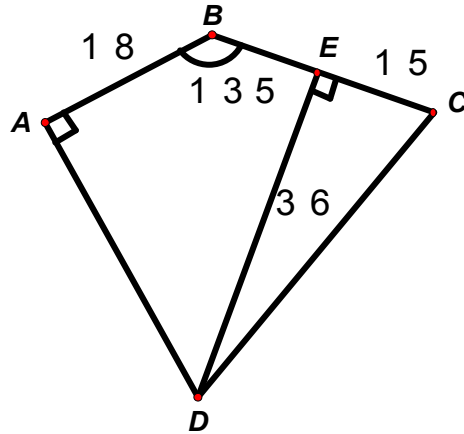
- 3 The following number is made up of all the digits of the whole numbers 1 to 2005.

**12345678910111213141516.....20042005**

Find the number of zeros in this number.

**[Omission of essential working will result in loss of marks]**

- 4 **ABCD** is a quadrilateral (4 sided figure).  $\angle ABC = 135^\circ$ ,  $\angle BAD = \angle CED = 90^\circ$ , **AB** = 18 cm, **CE** = 15 cm and **DE** = 36 cm. Find the area of the quadrilateral **ABCD**.



[Omission of essential working will result in loss of marks]

5 Five classes **A**, **B**, **C**, **D** and **E** took part in an international chess competition.

Each class sent in 2 participants.

The rules of the competition were :

(a) Participants do not compete with each other for more than 1 game,

(b) Participants from the same class cannot compete with each other.

After a few rounds of competitions, it turned out that all had completed different number of games, except for a participant from class **A**.

How many games had the **2 participants** from class **A** completed?

**[Omission of essential working will result in loss of marks]**

**6** **Allen, Benedict and Carl** started at the same instant from the same point using the same route trying to overtake a fourth cyclist **Donald** traveling at a constant speed ahead of them. **Allen** and **Benedict** each took 10 hours and 2 hours respectively to overtake **Donald**.

Given that **Allen, Benedict and Carl** each cycled at the constant speed of 4 km/h, 5 km/h and 10 km/h respectively throughout the journey, find the time, in hours, that **Carl** took to overtake **Donald**.

[Omission of essential working will result in loss of marks]

**END OF PAPER**

