Sample of HSFOL Problems – Year 7

1. What number comes next in this number pattern?   36, 30, 25, 20, 16, ___

2. If you randomly draw a card from a standard pack of playing cards, what is the probability that it will be either a black jack or the queen of hearts?

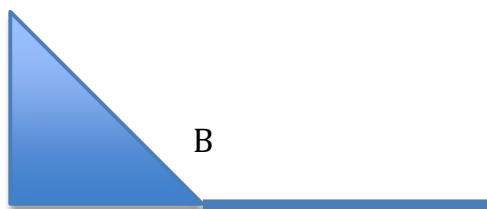**3.** If the time on this clock is10:10, what is the size of the smaller angle between the two hands?

4. How many fractions are there between $^4/_7$ and $^6/_7$? Choose one answer only.
- o One
- o Two
- o Four
- o Seven
- o Infinitely many

5. A factory machine makes two sizes of wooden cubes. The smaller one has a surface area of 24 square centimetres, while the other cube has edges that are 350% larger. What is the volume of the larger cube?

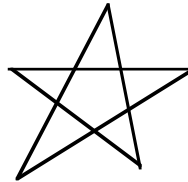**6.** In the diagram of an isosceles right triangle below, what is the size of obtuse angle B?

B

7. Jodie and Terry are running around the oval track that is 400 metres long. Jodie is running at a constant speed of 5 metres per second, while Terry is running at a constant speed of 4 metres per second. If they commence the run together, how far would they need to run at these rates before they meet again?

8. There are two ways for two people to form a line or queue, and six ways for three people to form a queue. In how many different ways can five people form a queue?

9. How many triangles of all sizes in this diagram?

10. Michael Clarke's last six innings resulted in 102, 90, 15, 63, 44 and 88 runs. How many runs must he score in his seventh innings to lift his average by 10?