

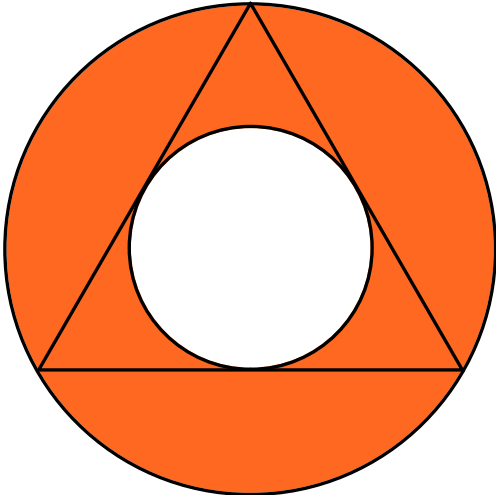
# Problem solving competition



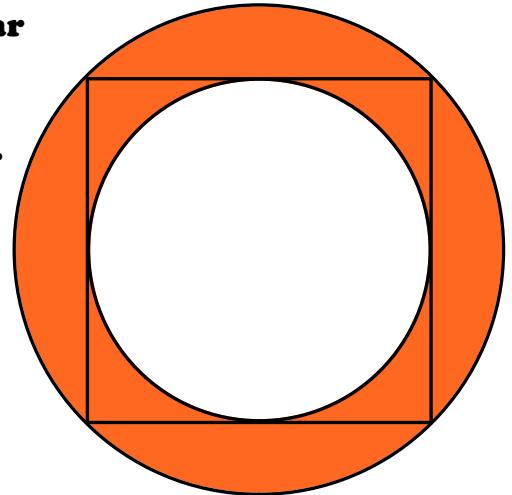
**Answer some or all of these questions to win up to £25 in iTunes vouchers?**



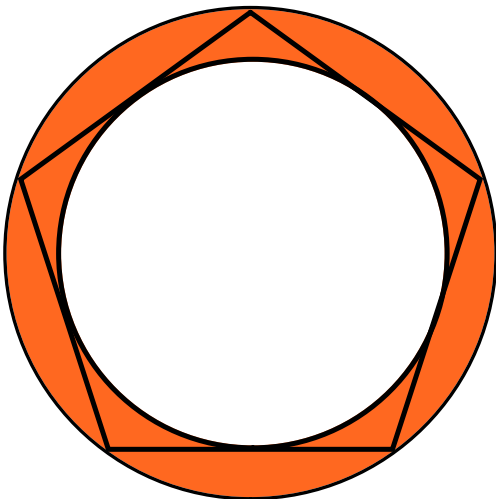
**Each of these figures is made from a regular polygon with an inscribed and outscribed circle.**



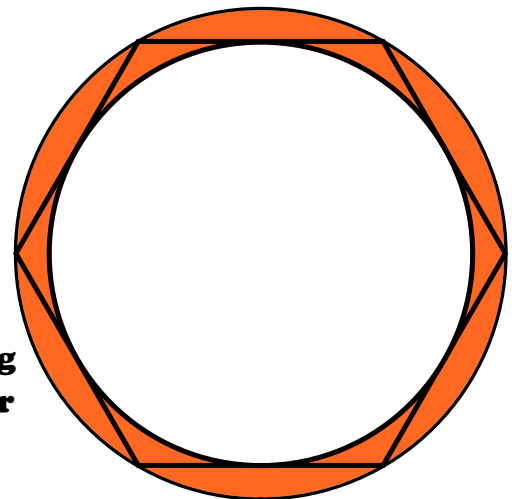
**What fraction of each figure is shaded?**



**What fraction of the circle would be shaded for other regular polygons such as an octagon or decagon?**



**Can you create a formula to find the fraction shaded for a pattern containing an 'n sided' regular polygon?**



**This competition is open to students from any year group.**

**A copy of this poster can be downloaded from Mr Ely's Mathsfest website via the school portal or ask your maths teacher for a copy.**

**Mr Jackson is offering prizes of £25, £15 and £10 iTunes vouchers to those with the most impressive answers.**

**Closing date for entries is Friday 19th June. Hand your answers to Mr Ely or your maths teacher. Good luck!**