

6) • By the description of the soccer ball in the question, we know that

$$f_5 = 12, f_6 = 20 \text{ and } f_n = 0 \quad \forall n \neq 5, 6$$

$$\text{So } f = f_5 + f_6 = 32$$

• By question (5) we also know that

$$2e = 5f_5 + 6f_6 = 180$$

$$\Rightarrow e = 90$$

• Lastly, we can see that  $v_3 = v$  (all vertices have three edges coming into them).

Hence

$$2e = 3v_3 + 4v_4 + \dots = 3v$$

$$\Rightarrow v = 60$$

$$\text{So, } v - e + f = 60 - 90 + 32 = 2 \quad \checkmark$$