Question 2

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proposition: $\forall n \in \mathbb{Z}(5|(n+n+1+n+2+n+3+n+4))$

proof: consider an arbitrary integer n

1.we prove $(\exists x \in \mathbb{Z})(n+n+1+n+2+n+3+n+4) = 5 * x$ therefore the sum any five consecutive integers is divisible by 5.

2.$(n+n+1+n+2+n+3+n+4) = 5n+10 = 5(n+2)$

3.n+2 is a integer. let $x = n$+2, we find an $x \in \mathbb{Z}$ satisfy (n+n+1+n+2+n+3+n+4) = $5 * x$.

4.**conclution:** the sum any five consecutive integers is divisible by 5.