Target 7 Sheet 02A

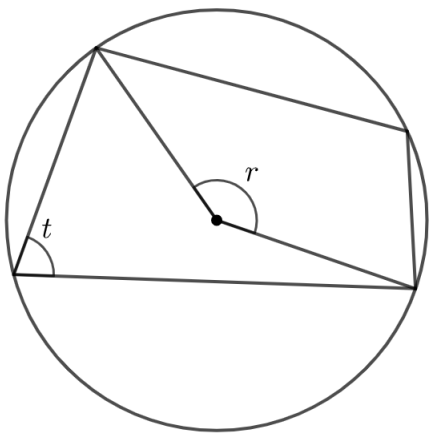
BossMaths

Question 1

n is an integer.
Show that $37n + 32 + (5n + 6)(3n + 1)$ is never a multiple of 15.

Question 2

Here is a cyclic quadrilateral on a circle with centre point as marked.
Given that $t = 72°$, work out the size of angle r.



Question 1

n is an integer.
Show that $37n + 32 + (5n + 6)(3n + 1)$ is never a multiple of 15.

Expanding and simplifying, we obtain
$15n^2 + 60n + 38$.

We can write this as $15(n^2 + 4n + 2) + 8$.

This is always 8 more than a multiple of 15, so is never a multiple of 15

Question 2

Here is a cyclic quadrilateral on a circle with centre point as marked.
Given that $t = 72°$, work out the size of angle r.

$r = 144°$