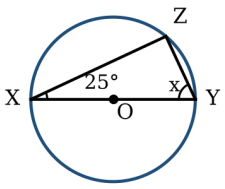
Day 156 **A Tier 10-a-day**

1 Here are the first four terms of a sequence.
14, 12, 10, 8
(a) Find an expression for the nth term.
(b) Find the first term in the sequence that is less than -150.

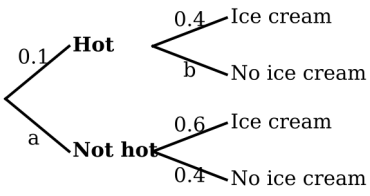
2 Light travels at 3×10^5 kilometres per second.
A distant star is 8.4×10^9 kilometres from Earth.
Work out how many seconds light takes to travel from a distant star to Earth.
Give your answer in standard form.

3 XY is a diameter of the circle.
Angle YXZ = 25°.
Work out the size of angle x.
Give a reason for each step of your working.



4 Expand and simplify
$(3x - 5)(2x + 2)$

5 The tree diagram shows probabilities for two events.
(a) Work out the values of a and b.
(b) Work out the probability that Leah buys an ice cream.



Day 156	A Tier 10-a-day
6 A closed gift box is a cuboid measuring 5 cm by 9 cm by 5 cm. Work out the total surface area.	
7 The value of an investment grows by 2% each year. (Calculator) After 2 years it is worth £31,212. Work out its value at the start.	
8 Solve $x^2 - 5x - 14 < 0$	
9 Triangle UVW: UV = 11 cm, VW = 4 cm, UW = 13 cm. Triangle ABC: AB = 11 cm, BC = 4 cm, AC = 14 cm. Are the two triangles congruent? Give a reason for your answer.	
10 A bag contains 3 mint sweets and 6 toffee sweets. Three sweets are taken at random without replacement. Work out the probability that exactly one of the three sweets is toffee.	