

8th June



Corbettmaths

The equation of a circle is

$$x^2 + y^2 = 16$$

$$r = 4$$

Find the circumference of the circle.  
Give your answer to 1 decimal place.

$$\begin{aligned} C &= \pi \times d \\ &= \pi \times 8 \\ &= 25.1 \end{aligned}$$

Work out an expression for the  $n$ th term of this quadratic sequence

3    14    31    54    ...  
    11    17    23    6

Give your answer in the form  $an^2 + bn + c$

$$\begin{aligned} a &= 3 \\ b &= 2 \\ c &= -2 \end{aligned}$$

$$3n^2 + 2n - 2$$



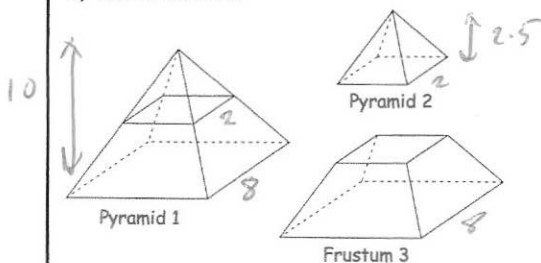
3 coins are picked at random without replacement.

20	20	20	5	5	5
50	5	5			
5	50	5			

Work out the probability that exactly 60p is chosen.

$$\begin{aligned} P(20, 20, 20) &= \frac{3}{12} \times \frac{2}{11} \times \frac{1}{10} = \frac{6}{1320} \\ P(50, 5, 5) &= \frac{1}{12} \times \frac{2}{11} \times \frac{1}{10} = \frac{2}{1320} \\ \frac{6}{1320} + \frac{2}{1320} + \frac{2}{1320} + \frac{2}{1320} &= \frac{1}{110} \end{aligned}$$

A solid square based pyramid 1 is divided into two parts: a square based pyramid 2 and a frustum 3, as shown.



Pyramid 1 has a base of side length 8cm. Pyramid 2 has a base of side length 2cm. The perpendicular height of pyramid 1 is 10cm.

Frustum 3 is made from a material with a density of 4.2g/cm<sup>3</sup>

Work out the mass of the frustum.

$$\begin{aligned} \text{Volume of P1} &: \frac{1}{3} \times 8^2 \times 10 = \frac{640}{3} = 213.3 \text{ cm}^3 \\ \text{Volume of P2} &: \frac{1}{3} \times 2^2 \times 2.5 = \frac{10}{3} = 3.3 \\ \text{Volume of F3} &= 210 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} m &= d \times v \\ &= 210 \times 4.2 = 882 \text{ g} \end{aligned}$$