24th February **Higher Plus 5-a-day**

Corbettmaths

Prove the product of three consecutive odd numbers is odd

$(2n+1)(2n+3)(2n+5)$

$8n^3 + 36n^2 + 46n + 15$

$2(4n^3 + 18n^2 + 23n) + 15$

even + odd = odd

Make c the subject of $\frac{1}{m} = \frac{a}{c} + \frac{1}{n}$

$\frac{1}{m} = \frac{an+c}{cn}$

$\frac{cn}{m} = an+c$

$cn = amn + cm$

$cn - cm = amn$

$c(n-m) = amn$

$c = \frac{amn}{n-m}$

Martina has the following coins.

5p 5p 10p 20p

20p 20p 50p £1

Martina has to pay 60p for a car park ticket.
She selects 3 coins at random, without replacement, from her pocket.

$P(20\ 20\ 20) = \frac{3}{8} \times \frac{2}{7} \times \frac{1}{6} = \frac{1}{56}$

Work out the probability that she has chosen the exact price of the ticket

$P(50\ 5\ 5) = \frac{1}{8} \times \frac{2}{7} \times \frac{1}{6} = \frac{1}{168}$

$\frac{1}{56} + \frac{1}{168} + \frac{1}{168} + \frac{1}{168} = \frac{1}{28}$

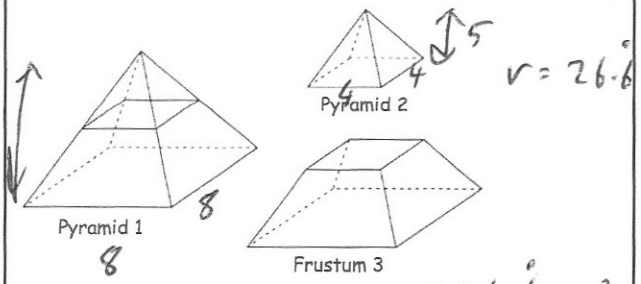
A solid square based pyramid 1 is divided into two parts: a square based pyramid 2 and a frustum 3, as shown.

Pyramid 1 has a base of side length 8cm.
Pyramid 2 has a base of side length 4cm.
The perpendicular height of pyramid 1 is 10cm.

$V = \frac{1}{3} AL$

Frustum 3 is made from a material with a density of 4.2g/cm³

$d = m \div v$



$V = 213.\dot{3}$

$V = 26.\dot{6}$

$V = 186.\dot{6}\ cm^3$

Work out the mass of the frustum.

$m = 4.2 \times 186.\dot{6}$

$= 784g$