
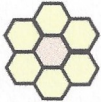
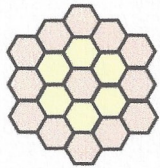
 Corbettmaths	
<p>1st December</p>	
<p>Prove that the sum of four consecutive whole numbers is always even.</p> $n + (n+1) + (n+2) + (n+3)$ $= 4n + 6$	$2(2n+3)$ <p>\therefore even</p>
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  Pattern 1 1 </div> <div style="text-align: center;">  Pattern 2 6 </div> <div style="text-align: center;">  Pattern 3 12 </div> </div>	<p>How many tiles are needed to make pattern number 12?</p> $a=3 \quad b=-3 \quad c=1$ $3n^2 - 3n + 1$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;"> 397 </div>
<p>An object has a mass of 120kg, correct to two significant figures. 115 kg</p> <p>The density of the material it is made from is 8.4 g/cm^3, correct to one decimal place. 8.45</p> <p>Work out the smallest possible volume of the object. Give your answer to three significant figures. 13600 cm^3</p>	$v = \frac{\text{mass}}{\text{density}}$ $= \frac{115000}{8.45}$ $= 13609.47\dots$ <div style="margin-left: 200px;"> 13600 cm^3 </div>
<p>Julie has an empty container. She puts some white, pink and green counters into the box. The ratio of white to pink to green counters is 1:3:1. $x : 3x : x$</p> <p>Julie takes at random, 2 counters from the box, one at a time, without replacement. The probability that she takes two white counters is $\frac{3}{95}$</p>	<p>How many white counters did Julie put in the box?</p> $\frac{x}{5x} \times \frac{x-1}{5x-1} = \frac{3}{95}$ $\frac{x-1}{25x-5} = \frac{3}{95}$ $75x - 15 = 95x - 95$ <div style="margin-left: 150px;"> $-15 = 20x - 95$ $20x = 80$ $x = 4$ </div> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-left: 20px;"> 4 </div>
$f(x) = \frac{5x + 2}{6}$ <p>Find $f^{-1}(x)$</p> $y = \frac{5x + 2}{6}$ $6y = 5x + 2$	$6y - 2 = 5x$ $x = \frac{6y - 2}{5}$ $f^{-1}(x) = \frac{6x - 2}{5}$