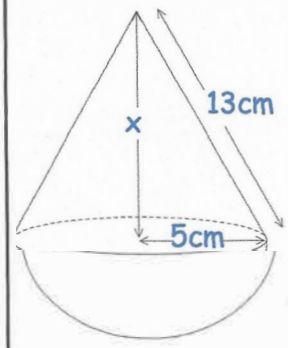
Name: _____ 5-a-day Higher Plus

18th October

Corbettmaths



$x = 12cm$

Find x

12cm

Calculate the volume of the solid shown.

Cone: $\frac{1}{3} \times \pi \times 5^2 \times 12 = 100\pi$

hemisphere: $\frac{2}{3} \times \pi \times 5^3 = \frac{250}{3}\pi$

$\frac{550}{3}\pi$ or $575.96cm^3$

The line x – 3y = 12 meets the y-axis at the point A and the x-axis at the point B.

Find the distance between the midpoint of AB and the origin.

$A(0, -4)$ $B(12, 0)$

midpoint $= (6, -2)$

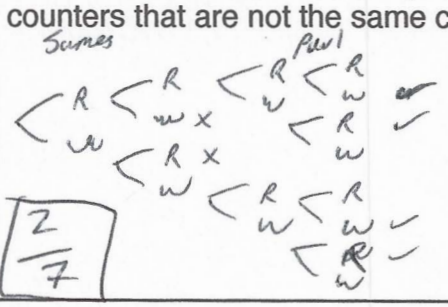
$\sqrt{6^2 + (-2)^2} = 6.3246$

A bag contains 6 red counters and 2 white counters.

James takes two counters at random, without replacement from the bag.

If these two counters are the same colour, Paul will take two counters from the bag, without replacement.

Find the probability that Paul picks two counters that are not the same colour.



$\frac{2}{7}$

$P(RRRW) = \frac{1}{7}$

$\frac{6}{8} \times \frac{5}{7} \times \frac{4}{6} \times \frac{2}{5}$

$P(RRWR) = \frac{1}{7}$

$\frac{6}{8} \times \frac{5}{7} \times \frac{2}{6} \times \frac{1}{5}$

$P(WWRW) = 0$

$P(WWWR) = 0$

Prove the difference between the squares of two consecutive numbers is equal to the sum of the two numbers.

$(n+1)^2 - n^2$

$n^2 + 2n + 1 - n^2$

$2n + 1$

$(n+1) + n$

$= 2n + 1$

QED

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