MATHEMATICAL SKILLS

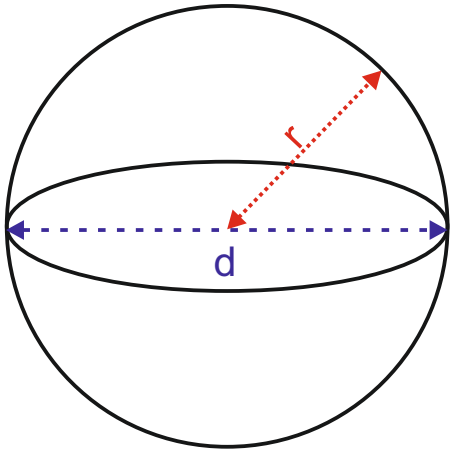
VOLUME OF A SPHERE

DESIGN AND TECHNOLOGY

WORLD ASSOCIATION OF TECHNOLOGY TEACHERS https://www.facebook.com/groups/254963448192823/ www.technologystudent.com © 2017 V.Ryan © 2017

HOW TO CALCULATE THE VOLUME OF A SPHERE

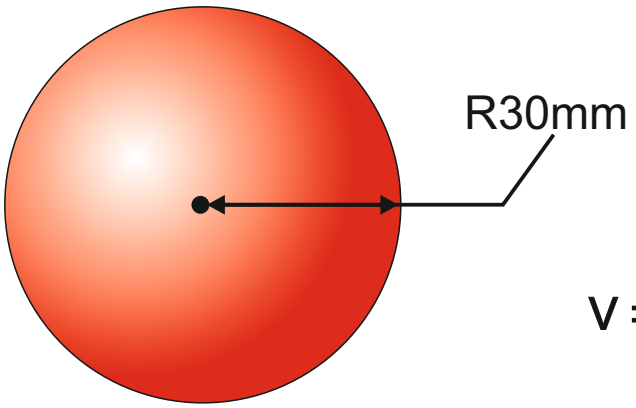
DEFINITION: A sphere is an object that is absolutely symmetrical about it's centre. From any angle it appears to be a circle, but it is a true three dimensional object.



FORMULA

$$v=4/3\pi r^3$$

EXAMPLE CALCULATION - VOLUME OF A SPHERE



$$V = 4/3\pi r^3$$

$$v = \frac{4}{3} \times \frac{3.14 \times (30 \times 30 \times 30)}{1}$$

$$v = \frac{4}{3} \times \frac{3.14 \times (27000)}{1}$$

$$v = \frac{4}{3} \times \frac{84780}{1}$$

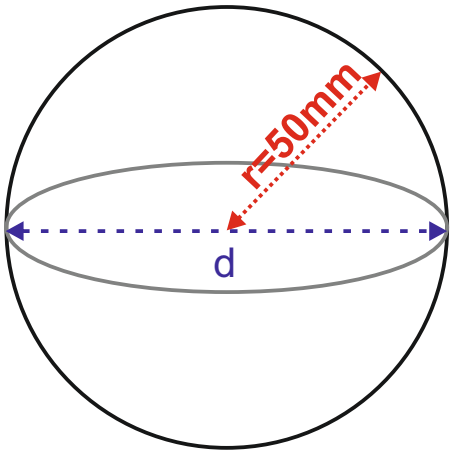
$$v = \frac{339120}{3}$$

$$v = 113040mm^3$$

FORMULA

$$v=4/3\pi r^3$$

Using the formula shown opposite, calculate the volumes of the following spheres.**(pi (π) is 3.14)**



$$v=4/3\pi r^3$$

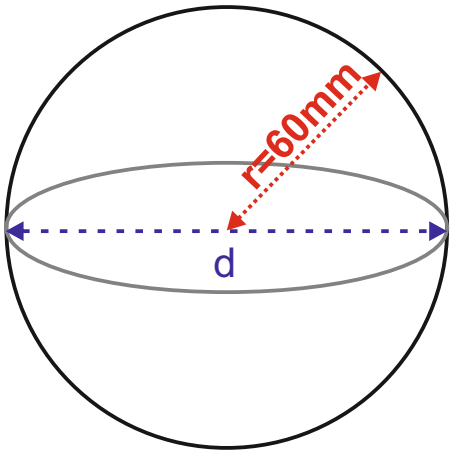
$$v= \frac{4}{3} \times \frac{3.14 \times (50 \times 50 \times 50)}{1}$$

$$v= \frac{4}{3} \times \frac{3.14 \times (125000)}{1}$$

$$v= \frac{4}{3} \times \frac{392500}{1}$$

$$v= \frac{1570000}{3}$$

$$v= 523333.33mm^3$$



$$v=4/3\pi r^3$$

$$v= \frac{4}{3} \times \frac{3.14 \times (60 \times 60 \times 60)}{1}$$

$$v= \frac{4}{3} \times \frac{3.14 \times (216000)}{1}$$

$$v= \frac{4}{3} \times \frac{678240}{1}$$

$$v= \frac{2712960}{3}$$

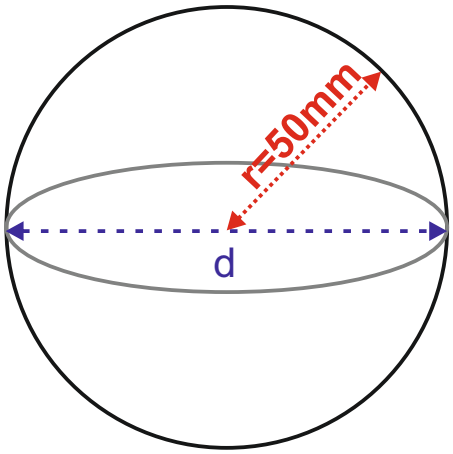
$$v= 904320mm^3$$

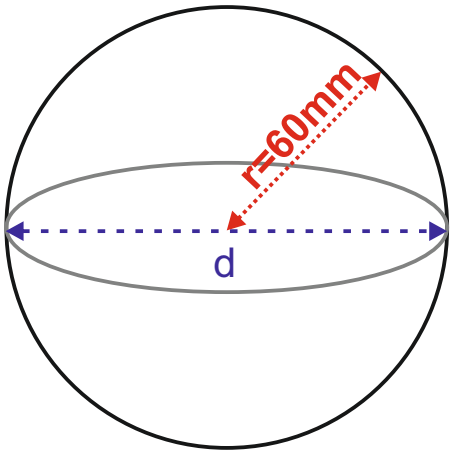
EXAMINATION QUESTIONS - VOLUME OF A SPHERE

FORMULA

$$v=4/3\pi r^3$$

Using the formula shown opposite, calculate the volumes of the following spheres.**(pi (π) is 3.14)**

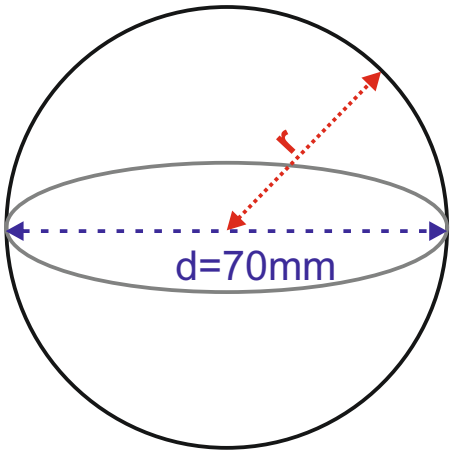




FORMULA

$$v=4/3\pi r^3$$

Using the formula shown opposite, calculate the volumes of the following spheres.**(pi (π) is 3.14)**



d= 70mm therefore r = 35mm

$$v=4/3\pi r^3$$

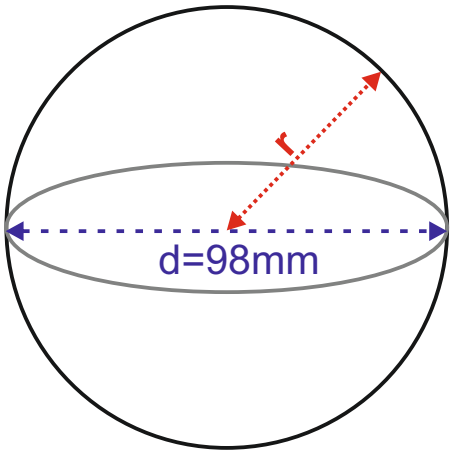
$$v= \frac{4}{3} \times \frac{3.14 \times (35x35x35)}{1}$$

$$v= \frac{4}{3} \times \frac{3.14 \times (42875)}{1}$$

$$v= \frac{4}{3} \times \frac{134627.5}{1}$$

$$v= \frac{538510}{3}$$

$$v= 179503.33mm^3$$



d= 98mm therefore r = 49mm

$$v=4/3\pi r^3$$

$$v= \frac{4}{3} \times \frac{3.14 \times (49x49x49)}{1}$$

$$v= \frac{4}{3} \times \frac{3.14 \times (117649)}{1}$$

$$v= \frac{4}{3} \times \frac{369417.86}{1}$$

$$v= \frac{1477671.44}{3}$$

$$v= 492557.15mm^3$$

EXAMINATION QUESTIONS - VOLUME OF A SPHERE

FORMULA

$$v=4/3\pi r^3$$

Using the formula shown opposite, calculate the volumes of the following spheres.**(pi (π) is 3.14)**