Tirohia te uhi o muri e kitea ai te whakapākehātanga o tēnei uhi

1

91947MR

NZQA | Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Te Pāngarau me te Tauanga, Kaupae 1, 2025

91947M Te whakaatu i te tukanga whakaaro pāngarau

Ngā whiwhinga: E rima

TE PUKAPUKA RAUEMI

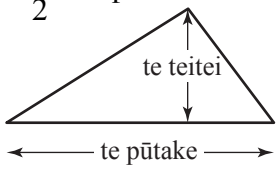
Whakamahia tēnei pukapuka hei whakaoti i ngā tūmahi i Te Pāngarau me te Tauanga 91947M.

Tirohia kia kitea ai e tika ana te raupapatanga o ngā whārangi 2–5 i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

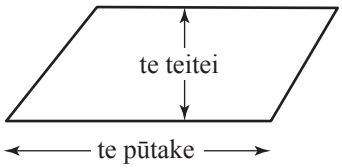
E ĀHEI ANA TŌ PUPURI KI TĒNEI PUKAPUKA HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

Te ine

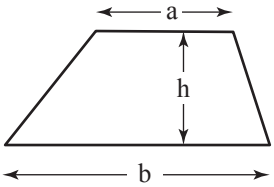
Te horahanga o te tapatoru
$= \frac{1}{2} \times$ te pūtake $\times$ te teitei



Te horahanga o te tapawhā whakarara
= te pūtake $\times$ te teitei



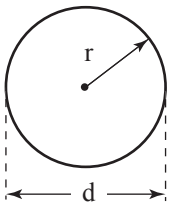
Te horahanga o te taparara $= \frac{1}{2}(a + b)h$



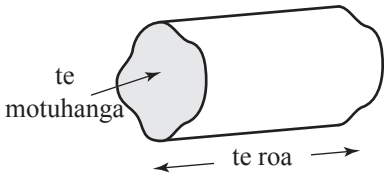
Te paenga o te porowhita $= \pi d$
$= 2\pi r$

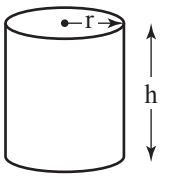
Te horahanga o te porowhita $= \pi r^2$

π = ko te 3.14 ki ngā mati whaiira e 2



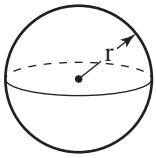
Te rōrahi o te poro = te horahanga o te motuhanga × te roa





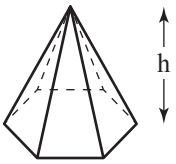
Te rōrahi o te rango = $\pi r^2 h$

Te horahanga mata o te rango = $2\pi rh + 2\pi r^2$



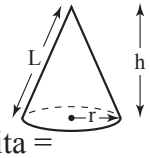
Te rōrahi o te poi = $\frac{4}{3}\pi r^3$

Te horahanga mata o te poi = $4\pi r^2$



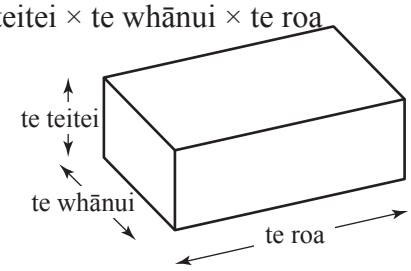
Te rōrahi o te koeko
$= \frac{1}{3} \times$ te horahanga o te pūtake $\times$ te teitei

Te rōrahi o te koeko porowhita = $\frac{1}{3}\pi r^2 h$



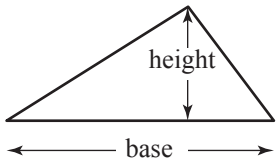
Te horahanga mata o te koeko porowhita = $\pi rL + \pi r^2$

Te rōrahi o te poro-tapawhā hāngai =
te teitei × te whānui × te roa

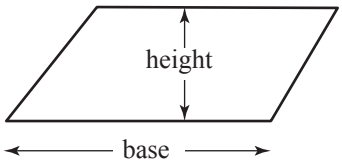


Measurement

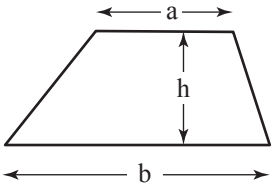
Area of triangle $= \frac{1}{2} \times \text{base} \times \text{height}$



Area of parallelogram = base × height



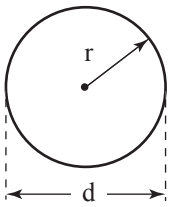
Area of trapezium $= \frac{1}{2}(a + b)h$



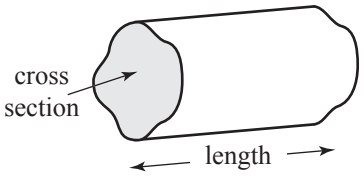
Circumference of circle $= \pi d$
$= 2\pi r$

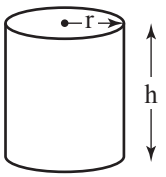
Area of circle $= \pi r^2$

$\pi = 3.14$ to 2 decimal places



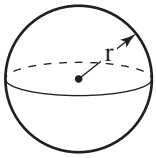
Volume of prism = area of cross section × length





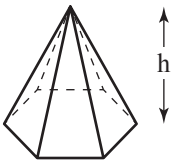
Volume of cylinder $= \pi r^2 h$

Surface area of cylinder $= 2\pi rh + 2\pi r^2$

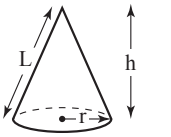


Volume of sphere $= \frac{4}{3}\pi r^3$

Surface area of sphere $= 4\pi r^2$



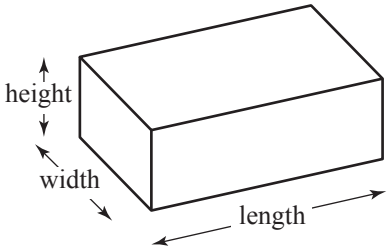
Volume of pyramid
$= \frac{1}{3} \times$ area of base × height



Volume of cone $= \frac{1}{3}\pi r^2 h$

Surface area of cone $= \pi rL + \pi r^2$

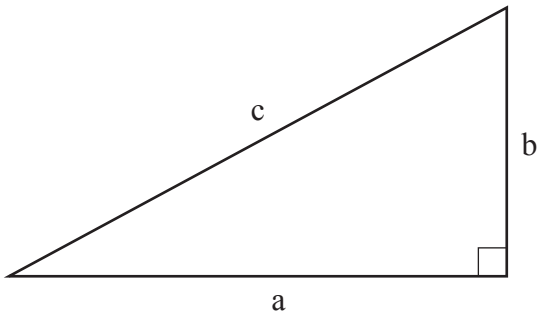
Volume of cuboid = height × width × length



Ngā tapatoru hāngai

Te ture a Pythagoras

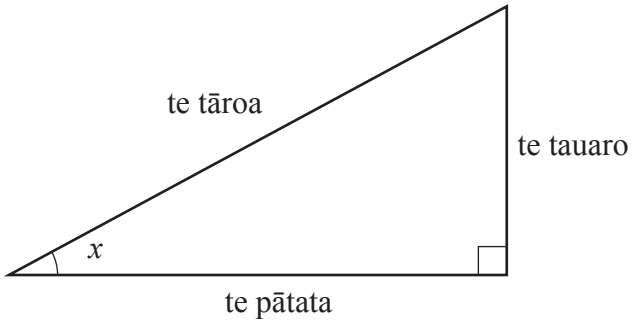
$a^2 + b^2 = c^2$



$$\sin x = \frac{\text{te tauaro}}{\text{te tāroa}}$$

$$\cos x = \frac{\text{te pātata}}{\text{te tāroa}}$$

$$\tan x = \frac{\text{te tauaro}}{\text{te pātata}}$$



ko ēnei rānei

te tauaro = te tāroa $\times \sin x$

te pātata = te tāroa $\times \cos x$

te tauaro = te pātata $\times \tan x$

Te heketea kotahi = 10 000 m^2 Te rita kotahi = 1000 cm^3 Te ritamano kotahi = 1 cm^3 1 tana = 1000 kg

$$\text{Te tere toharite} = \frac{\text{te tawhiti}}{\text{te roa o te wā}}$$

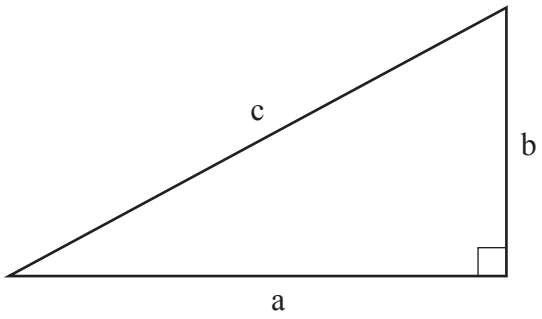
Te tapeke o ngā koki roto o tētahi taparau tapa-n = $(n - 2) \times 180°$

Te whakamāramatanga o te ahunga: “Ka inea te ahunga mai i te Raki, ka huri whakatekaraka ai.”

Right-angled Triangles

Pythagoras' theorem

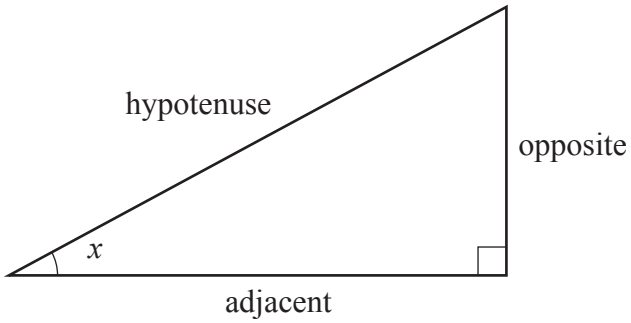
$a^2 + b^2 = c^2$



$$\sin x = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan x = \frac{\text{opposite}}{\text{adjacent}}$$



or

$\text{opposite} = \text{hypotenuse} \times \sin x$

$\text{adjacent} = \text{hypotenuse} \times \cos x$

$\text{opposite} = \text{adjacent} \times \tan x$

1 hectare = 10 000 m^2 1 litre = 1000 cm^3 1 ml = 1 cm^3 1 tonne = 1000 kg

Average speed = $\dfrac{\text{total distance}}{\text{total time}}$

Sum of internal angles of an n-sided polygon = $(n - 2) \times 180°$

Definition of bearings: "Bearings are measured from North, in a clockwise direction."

English translation of the wording on the front cover

Level 1 Mathematics and Statistics 2025

91947 Demonstrate mathematical reasoning

Credits: Five

RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics 91947.

Check that this booklet has pages 2–5 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.

91947MR