



## Te Kaupae 1 Te Pāngarau 2025

### 92067 Te whakamahi tikanga taurangi hei whakaoti rapanga

Ngā whiwhinga: E 5

### 92068 Te whakamahi whakaaro āhuahanga, whakaaro ine hei whakaoti rapanga

Ngā Whiwhinga: E 5

## HE TAUAROMAHI

No part of the candidate's evidence in this exemplar material may be presented in an external assessment for the purpose of gaining an NZQA qualification or award.

## Tā te ākongā mahi (Kairangi/Excellence)



### Umu Kohukohu Whetū

Te whakamahi tikanga taurangi hei whakaoti rapanga  
92067 & 92068

## RANGAHAU HAUTAPU

### Te Pūāhua

Ko tā mātou mahi, he whakarite i te umu kohukohu whetū mō te hautapu o te kura whānui o Te Kura Kaupapa Māori o Ngā Mokopuna (14/07/25).

### He aha tēnei mea te hautapu?

I te marama o Hōtoke, ka rewa ngā whetū o Matariki. Ka kitea tuatahitia ki ngā paerangi o te rāwhiti. Nā, ka timata te mahi hautapu. Ko te ingoa katoa o tēnei mahi ko, "te whāngai i te hautapu" heoi ka whakarāpopotonga te tokomaha hei "hautapu" noa. Ko te tikanga o tēnei mea te hautapu, he taki i ngā kawa tapu hei whāngai ngā whetū.

### E TORU NGĀ WĀHAHNGA MATUA O TE WHĀNGAI I TE HAUTAPU

#### TE TIROHANGA

I te rewanga a Matariki, ka kimi i a Matariki i te poho o Ranginui. Ka āta mātaki ngā tohunga i ngā kāhui whetū. I taua wā, ka tiroiro rātou ki ngā āhuatanga katoa o ngā whetū. Hei taurira, te kaha o te piataata, te āhuahanga, te tae me te tawhiti o tētahi whetū ki tētahi anō. Ka tohua mēnā he maha ngā kai, mēnā rānei ka hē te āhuatanga o te tupu kai. Ka mutu, ko ēnei āhuatanga katoa ka mau ki te hirikapo o te tangata. Nā ēnei mātauranga, kua tika tā te tohunga whakapae mō te tau e kainamu ana.

#### TE TAKI MŌTEATEA

Ko te wāhanga tuarua ko te takinga o ngā kawa tapu. I te nuinga o te wā, ko ngā tohunga tērā e whakahaere ana, ofirā e taki ana i ngā karakia o te hautapu. Heoi, i tēnei horopaki, ko mātou ngā ākongā wharekura e taki ana i ngā karakia me ngā karanga. He 10 ngā karakia, he tikanga hoki ki tā ia karakia.

### Waere (kia haumarua ai te taki o te toenga o ngā karakia)

- Pōhutukawa
- Tipuānuku
- Tipuārangi
- Waiti
- Waitā
- Waipunarangi
- Ururangi
- Hiwa-i-te-rangi
- Matariki

Ko tētahi take o ēnei karakia, he tangi atu ki ngā mate kua whenumi ki te pō i te tau kua hipa. Ko te wā kia hoki ngā mahara ki ngā mate kua herea ki te waka o Taramainuku, arā, ki a Pōhutukawa.

### TE WHĀNGAI I NGĀ WHETŪ

Ko ngā whetū e hāngai ana ki ngā momo kai ko Tipuānuku, Tipuārangi, Waiti, rātou ko Waitā. Ko te mahi a te rōpu whakahaere i te hautapu, he tiki ake i ngā kai e hāngai ana ki ia o ērā whetū.

- Tipuānuku - Kumara
- Tipuārangi - Heihei
- Waiti - Tuna
- Waitā - Karengo

Whai muri i te tiki ake i ngā kai, ka tunua ki te rua hāngi, arā, ka hikina te taupoki i runga i te kōhua, ka rewa te auahi ki runga, koia tā tātou whāngai i ngā whetū. He wā kia tuku kia whakahau i a rātou. Koinei te te umu kohukohu whetū, ko te ahurewa me te whāngai i te Hautapu.

# Ngā Pātai Tūhura

1. He aha te whāroa me te putu o te rākau kua taka ki roto i te rua?

Matapae: ki tāku e matapae nei, ka 2.2 mita te roa o te rākau, ā, ka 15 te putu o tōna koki.

2. He aha te tawhiti mai te hunga kaikarakia ki te kura?

Matapae: ki tāku e matapae nei, ka 195 mita te tawhiti mai te hunga kaikarakia ki te kura.

3. “Ka hia hāora kia piki ake ko te paemahana o ngā kohatu i te rua hāngi ki te 515°C?”

Matapae: ki tāku e matapae nei, ka 2.5 hāora kia tae te paemahana ki te 515°C.

4. Ka hia te nui o te rua hāngi kia whāngai i te 100 tāngata?

Matapae: ki tāku e matapae nei, ka 0.6m<sup>3</sup> te nui o te rua hāngi mō te kai.

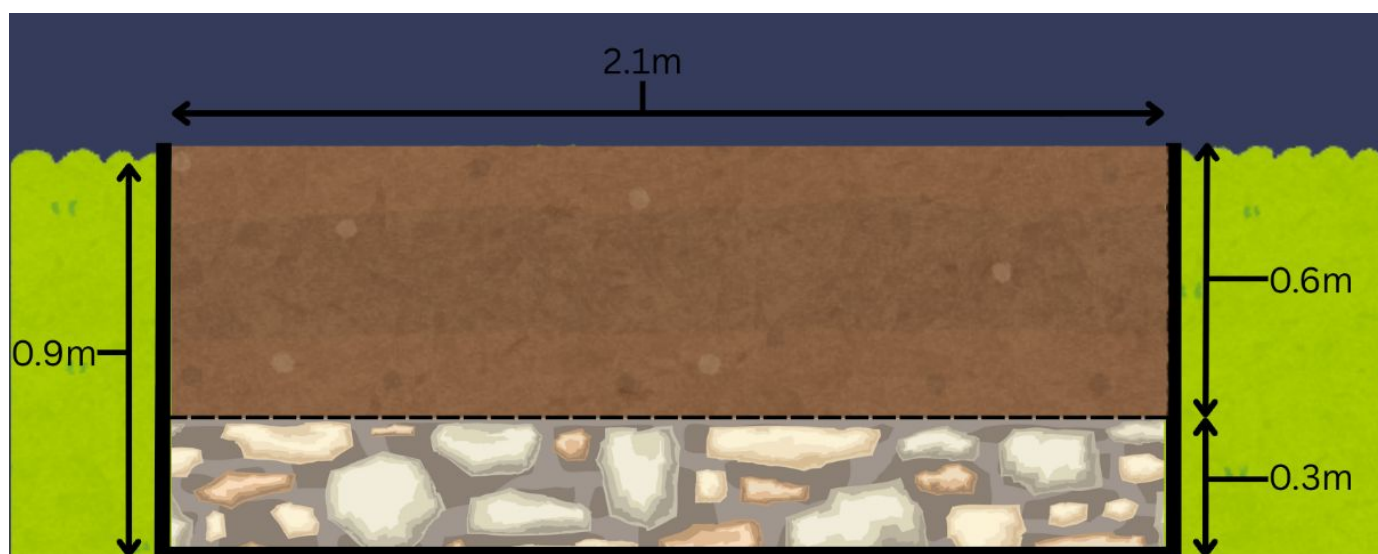
5. He aha te wā e tika ana kia rau atu i ngā kohatu ki te rua?

Matapae: ki tāku e matapae nei, ka 30 meneti (whai muri i te whakakā o te ahi) te wā tika.

6. He aha te rerekētanga o te rua hāngi papaku / papatahi, ki tētahi rua hohonu, whīroki ake?

Matapae: ki tāku e matapae nei, ka pai ake te hāngi hohonu, whīroki nā te mea, ka wera ake mehemea he hohonu ake tētahi rua.

## Te Rua Hāngi mō te Hautapu a TKKM o Ngā Mokopuna 2025





He 0.6m te hohonu o te rua. Kua waiho he 0.3m ki te papa mā ngā kōhatu. Ko te 0.6m (te toenga) te wāhi mā ngā kai. Ko te ine mō te whāroa o te rua ko te 2.1m.

Ko te wāhi mā ngā kai me te wāhi mā ngā kōhatu te wāhi o te katoa o te rua.

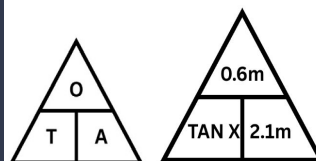
$$0.6m \times 2.1m + 0.3m \times 2.1m = 0.9m \times 2.1m$$

$$1.26m^2 \text{ (wāhi mā te kai)} + 0.63m^2 \text{ (wāhi mā ngā kōhatu)} = 1.89m^2 \text{ (te wāhi o te katoa o te rua).}$$

# Tauira 1 - Pākoki

Kātahi anō mātou kia mutu te keri i te rua hāngi, heoi anō, kua taka mai tētahi rākau (h) ki roto i te rua. Ko tāku mahi ināianei, he ine i te roa me te putu o te rākau.

Tuatahi ake ko tāku hiahia he ine i te uara o te koki o 'X'. I tēnei wā, e mōhio ana ahau i te uara o te tapa 'O' (0.6m) me te uara o te tapa 'A' (2.1m). Ki te kimi i te uara o 'X', ko tāku he whakamahi i te ture o 'TAN' nō roto tonu i te rautaki o pākoki.



$$\tan X = 0.6m / 2.1m$$

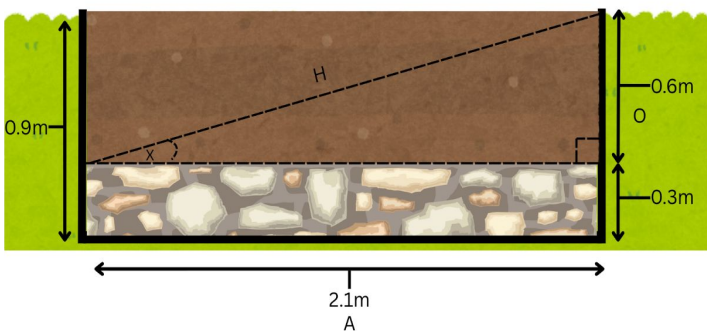
$$\tan X = 0.2857142857$$

$$X = \tan^{-1} 0.2857142857$$

$$X = 15.9453959^\circ$$

$$15.9^\circ \text{ (1m.i)}$$

Nā reira, he 15.9° te koki o te rākau kua taka ki roto i te rua. Ināianei, ko tāku hiahia he mōhio i te uara o te tapa 'h'.

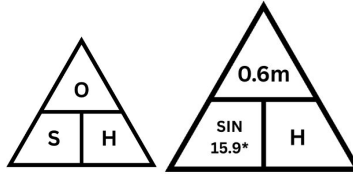


## Tauira 2 - Pākoki

I runga i te mōhio he  $15.9^\circ$  te koki o te rākau, e āhei ana ahau te kimi i te whāroa o te rākau.

Ki te kimi i te whāroa (te tapa 'h'), e āhei ana te whakamahi i te ture o 'SIN/SOH' o 'COS/CAH' rānei. Nā te mea he "H" ki roto i ērā ture e rua. Nā reira, ahakoa te kōwhiringa ka kimi tonu i te whakautu, te ine o te whāroa o te rākau/tapa 'H'.

Ko tāku he whakamahi i te ture o 'SIN/SOH'.



$$H = 0.6m / \text{SIN } 15.9^\circ$$

$$H = 2.190106991m$$

2.19m (2m.i)

**Whakautu:** E ai ki ēnei tātaitanga, he 2.19m (2m.i) te ine mō te whāroa o te rākau/te tapa 'h'.

Heoi anō, ko tāku ināiane he kite mehemea e tika ana tēnei whakautu. Nā reira ka whakamahi i te ture o Pythagoras.

## Tauira 1 - Te Ture o Pythagoras

Mō tēnei mahi, ka whakamahi i te ture tātai Pythagoras o

nā te mea, tē tāea te whakamahi i te ture o

me te ture o

$$h^2 = a^2 + b^2$$

$$a^2 = h^2 - b^2$$

$$b^2 = h^2 - a^2$$

i te mea kei te mōhio kē ahau i te uara o te tapa 'a' me te uara o te tapa 'b'.

$$a = 2.1\text{m}$$

$$b = 0.6\text{m}$$

$$h = ?$$

kia mōhio mai, i roto i tēnei rautaki pāngarau ko te 'O' ka huri kē hei B.

(kāore i te mōhio mēnā he tika te whakautu o muri, 2.19m)

$$h^2 = 2.1\text{m}^2 + 0.6\text{m}^2$$

$$h^2 = 4.41\text{m}^2 + 0.36\text{m}^2$$

$$h^2 = 4.77\text{m}$$

Nā, ināianei me hoatu tēnei nama ki te pūtake nā te mea kei te hiahia noa i te 'b', kua ko te  $b^2$ .

$$h = \sqrt{4.77\text{m}}$$

$$h = 2.184032967\text{m}$$

2.18m (2m.i)

## Te Whakautu

Kia hoki ngā mahara ki te whakautu o muri (2.19m), ko te take kāore tēnei i te tika i te mea i whakaāwhiwhia e au te whakautu o te putu, ā, i tae atu ki te 2.19m.

Ēngari, mēnā i whakamahi au i te nama katoa mō te putu (15.9453959°), ka tae atu ki te whakautu e tika ana, arā ko te 2.184032967m. 2.18m (2m.i)

**Whakautu:** He 2.18m (2m.i) te ine mō te whāroa o te rākau/tapa 'h'.

Nā reira, kia kimi  
Nā reira, ko te rōrahi o taku

ko te wāhi e wātea ana ki te taha kai  
ka rau atu te kai, 2.18m (2m.i)

# Tauira 2 - Te Ture o Pythagoras

$$h = 210\text{m}$$

$$a = 87\text{m}$$

$$b = ?$$

Mō tēnei mahi, ka whakamahi au i tētahi o ngā ture tangohia, arā ko te rautaki kia kimi i te uara o 'b'

$$b^2 = h^2 - a^2$$

$$b^2 = 210\text{m}^2 - 87\text{m}^2$$

$$b^2 = 44,100\text{m} - 7569\text{m}$$

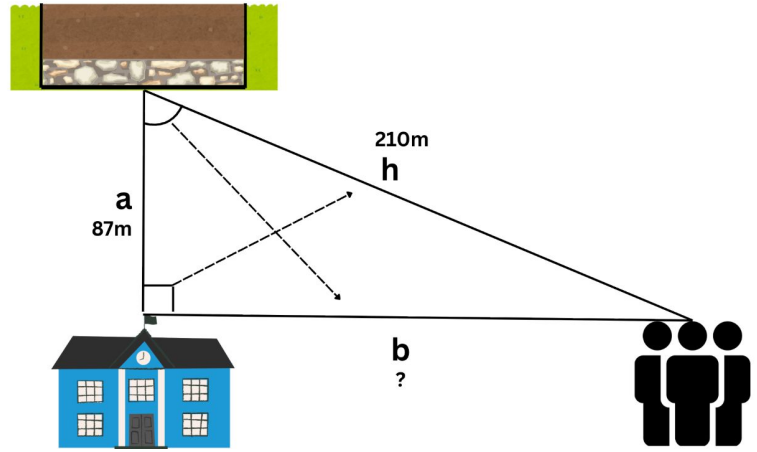
$$b^2 = 36441\text{m}$$

Nā, ināianei me hoatu tēnei nama ki te pūtake nā te mea kei te hiahia noa i te 'b', kua ko te  $b^2$ .

$$b = \sqrt{36441}\text{m}$$

$$b = 190.89\text{m} \text{ (2m.i)}$$

**Whakautu:** He 190.89m (2m.i) te tawhiti mai te hunga kaikarakia ki te kura.



**Horopaki:** Kātahi anō te takinga o ngā karakia kia mutu, nā, kei te hiahia te whānau te hoki atu ki te kura, hākari ai. He aha te tawhiti mai te hunga kaikarakia ki te kura?

**Kōrero āpiti:**

Ki te whakaarotia te tapatoru, ko te 'h' te tapa roa rawa i ngā wā katoa, ka mutu, ka anga atu te kokona o te koki 90 putu ki a ia hoki.

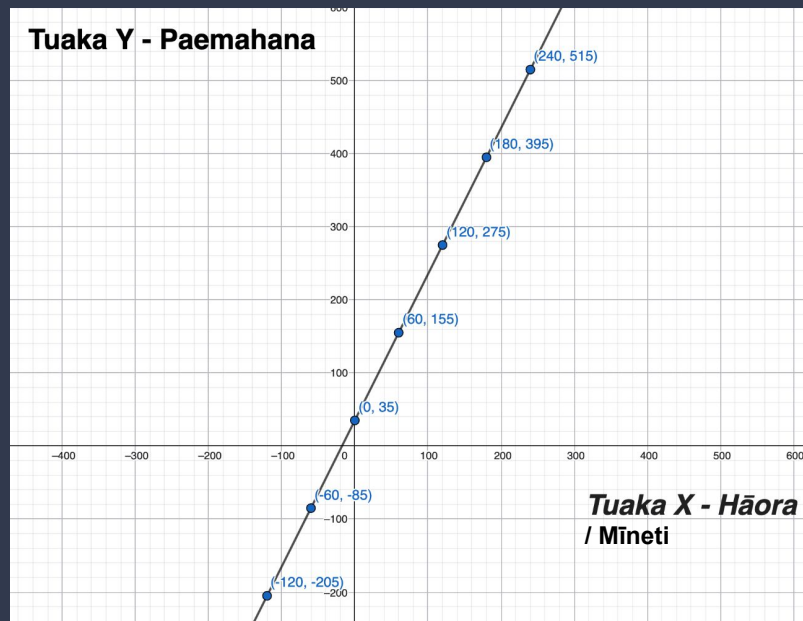
Ko te tapa 'a' te tapa e noho ki waenganui i ngā koki e rua.

Ko te tapa 'o' te tapa tauaro ki te koki.

Koinei ngā tohu e mōhio ai tātou i ngā tapa katoa.

# Tauira 1 – Whārite rārangi (ngā kauwhata)

# Kauwhata 1



Horopaki: Ināianei, ko tāku mahi he whakarite i ngā kōhatu hei tunu i ngā kai.

Tuatahi ake, ka tahuna te ahi kia tīmata te whakamahana i ngā kōhatu. Ko te mahi a ngā kōhatu ki te ahi, he pupuri, he tiaki i tērā mahana, ā, hei te wā ka rau atu ngā kai ki roto, ka tīmata ngā kai te tunu.

E whai ake nei ko te ture ka whāia e au kia tutuki ai te pāngarau whārite rārangi (kauwhata):

$$y = m x + c$$

- **Tuaka Y** – te paemahana (°C)
- **Tuaka X** – ngā hāora (te wā)
- **M** – te rōnaki (te pikinga o te paemahana i ia hāora)
- **C** – te haukotanga Y, te wāhi e tūtaki ana te rārangi i te tuaka Y

I roto i tēnei kauwhata, e whakaatu ana au i te pikinga o te paemahana o ngā kōhatu.

I whakamahia e au he rārangi tōtika nā te mea ka piki te paemahana i te **120°C i ia hāora**.

Ko te ture i whakamahia e au ko:

$$y = 120^\circ x + 35^\circ, \text{ arā:}$$

- Ka tīmata ngā kōhatu i te paemahana **35°C**,
- ā, ka piki **120°C** i ia hāora.

I tuhia e au ngā wāhi, (0,35), (1,155), (2,275), (3,395), me te (4,515), hei whakaatu i te piki haere o te paemahana o ngā kōhatu.

Ko te tīmatanga o te rārangi kei te 35°C i te tuaka Y, e tohu ana i te paemahana o ngā kōhatu i te tīmatanga. E mōhio ana ahau ka kore ngā kōhatu e tīmata i te **-200°C**, nā te mea tē taea ngā kōhatu te mātao pēnei i te ao tūturu. Engari, i whakamahia e au i taua wāhi kia **kitea rawatia i taku rārangi** i runga i te kauwhata. Kia mārakerake te kite i **te wāhi e tūtaki ai te rārangi ki te tuaka Y**.

Mā tēnei e māmā ake ai te **mārama** ki tāku kauwhata, e whakaatu ana i te āhua katoa o te ture nei, ( $y = 120^\circ x + 35^\circ$ ). Ehara i te mea ka tīmata ngā kōhatu i taua paemahana, he wāhanga noa tēnei hei whakaatu tika i te ture nei.

I whakamahia e au te ture  $Y = mX + c$  ki te kimi i te paemahana ( $y$ ) e ai ki te wā / ngā hāora ( $x$ ).  
I roto i taku whārite, ko te  $120^\circ$  te uara o  $M$ , nā, ko te  $35^\circ$  te uara o  $C$ .

$m = 120$  and  $c = 35$

I ia wā i panoni au i te uara o  $x$ , i kimi hoki au i te uara o  $y$ .  
Hei tauira:

- Mēnā ko  $X = -2(120\text{min})$ , ko  $y = -205^\circ\text{C}$
- Mēnā ko  $X = -1(-60\text{min})$ , ko  $y = -85^\circ\text{C}$
- Mēnā ko  $X = 0$ , ko  $y = 35^\circ\text{C}$
- Mēnā ko  $X = 1(60\text{min})$ , ko  $y = 155^\circ\text{C}$
- Mēnā ko  $X = 2(120\text{min})$ , ko  $y = 275^\circ\text{C}$ , ā, haere ake nei.

$x$	$Y$
-120min	-205
-60min	-85
0	35
60min	155
120min	275
180min	395
240min	515
300min	635

E whakaatu ana tēnei i te pikinga o te paemahana o ngā kōhatu. Ka tīmata i te  $35^\circ\text{C}$ , nā wai rā ka āta piki mai te  $120^\circ\text{C}$  i ia hāora.

E whai ake nei ko ngā mahi kia kimi i te uara o  $Y$  e hāngai ana ki te uara o  $X$ :

1.  $Y = mX + c$

$Y = 120^\circ(-2) + 35^\circ$   
 $Y = -205$

3.  $Y = mX + c$

$Y = 120^\circ(0) + 35^\circ$   
 $Y = 35$

5.  $Y = mX + c$

$Y = 120^\circ(2) + 35^\circ$   
 $Y = 275$

7.  $Y = mX + c$

$Y = 120^\circ(4) + 35^\circ$   
 $Y = 515$

2.  $Y = mX + c$

$Y = 120^\circ(-1) + 35^\circ$   
 $Y = -85$

4.  $Y = mX + c$

$Y = 120^\circ(1) + 35^\circ$   
 $Y = 155$

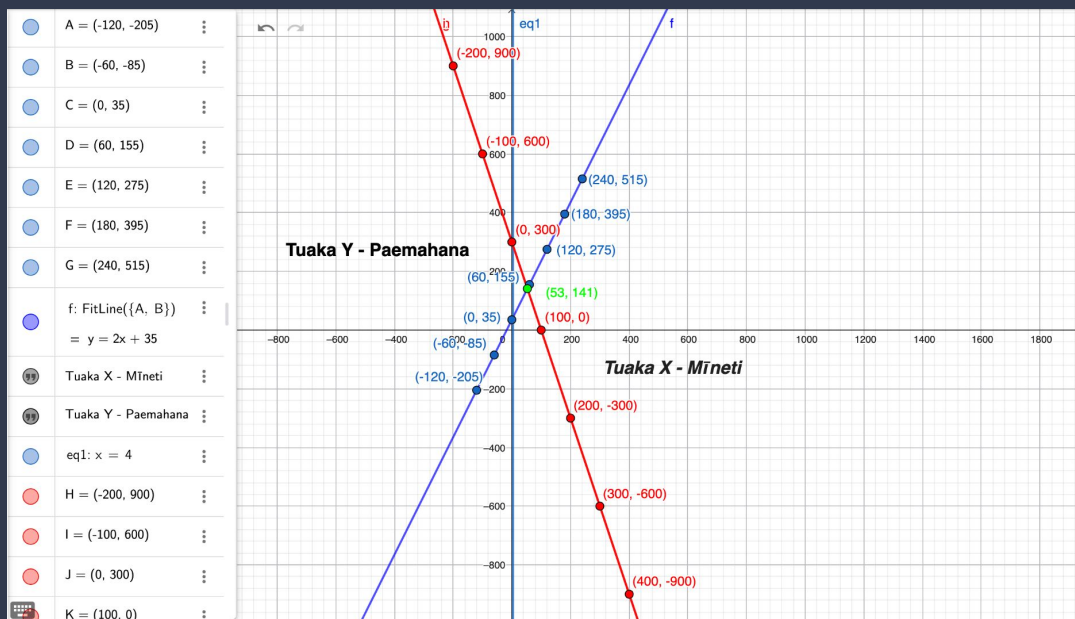
6.  $Y = mX + c$

$Y = 120^\circ(3) + 35^\circ$   
 $Y = 395$

8.  $Y = mX + c$

$Y = 120^\circ(5) + 35^\circ$   
 $Y = 635$

## Kauwhata 1, rārangi 2 (whero)



Te Ture:  $Y = -2x + 3$

1.  
 $Y = -2(-3) + 3$   
 $Y = 9$

2.  
 $Y = -1(-3) + 3$

3.  
 $Y = 0(-3) + 3$   
 $Y = 3$

4.  
 $Y = 1(-3) + 3$   
 $Y = 0$

5.  
 $Y = 2(-3) + 3$   
 $Y = -3$

6.  
 $Y = 3(-3) + 3$   
 $Y = -6$

7.  
 $Y = 4(-3) + 3$   
 $Y = -9$

$x$	$Y$
-200	900
-100	600
0	300
100	0
200	-300
300	-600
400	-900

Nā, i te mea kua mōhio ahau i ngā nama raraunga katoa, kua tāpiri ahau i ēnei nama ki te kauwhata o runga ake.

Nā ngā nama raraunga  $Y$  me te  $X$  e mōhio ai ahau ko ēhea ngā hoa takirua o te  $Y$  me te  $X$  e tuhia ai ko ngā pūwāhi i te kauwhata.

Hei tauira, ko te -200min o te raraunga  $x$  me te 900 o te raraunga  $Y$  he hoa takirua.

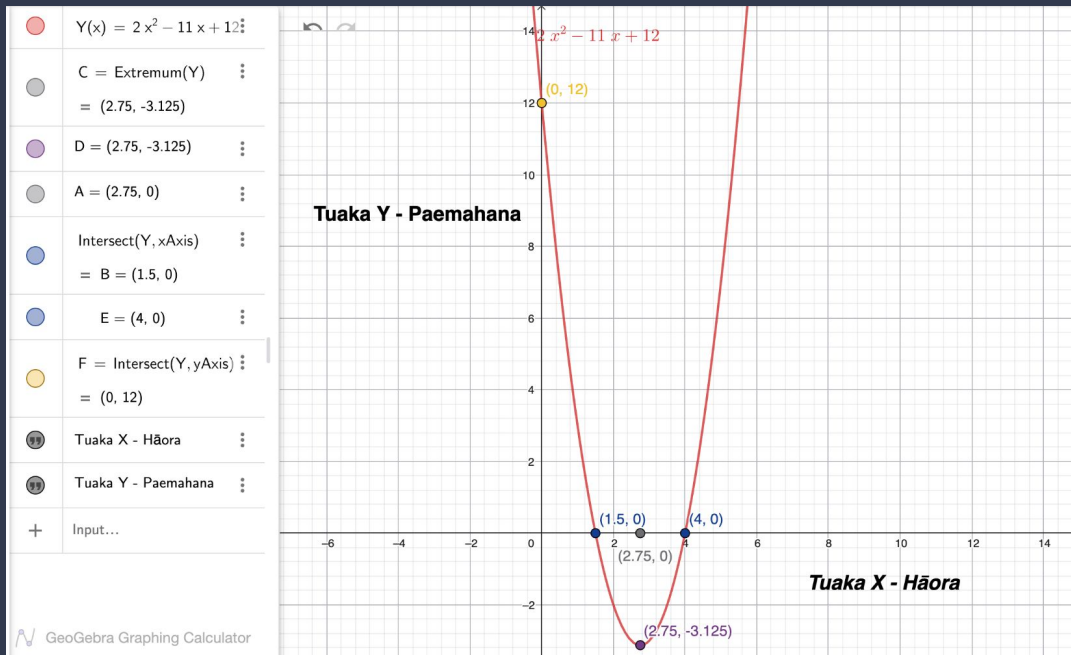
Nā reira, ka tuhia ko te pūwāhi ki te wāhi tonu e tūtaki ai te -200min o te tuaka  $Y$  ki te 900 o te tuaka  $X$  i runga i te kauwhata.

Ka pērā te mahi mō ia takirua nama raraunga, e kite ai ko te rārangi inenga. Kāti, me maumahara ki te hono i te rārangi mai i tētahi pūwāhi ki tētahi atu.

Nā reira, koo te rārangi whero e tohu ana i te pikinga o te paemahana o ngā kōhatu, ko te pūwahi kākariki (te haukotinga o ngā rārangi e rua) e tohu ana i te wā tika kia rau atu ngā kai ki roto i te rua. Arā ko te, **(3,141)**.

Kōrero āpiti: He pou pou ngā rārangi e rua e noho ana ki runga i te kauwhata.

## Kauwhata 2 - Unahi



### Horopaki:

Kua whakarite mātou i tētahi rua hāngī. E ai ki āku pouako, me rau atu i ngā pepa i te tuatahi, arā ko te **pūwāhi akitu**, ā, he kimi i te wā e tika ana kia tahu i te ahi, arā ko ngā **pūwāhi o te  $\mathcal{L}$** . Ko te tohutohu whakamutunga he kimi i te wā e tika ana kia rau atu i ngā kōhatu, arā ko te **haukotinga o te Y**.

Nō reira ko te whainga matua he kimi i ngā pūwāhi / uara o te akitu, o ngā  $\mathcal{L}$ , me te haukotinga Y.

#### 1. Te Whārite

E whai ake nei ko te whārite ka whakamahia e au mō tēnei mahi.

$$Y = 2x^2 - 11x + 12$$

Ka whakawhānui, ka whakatauwehe, ka āta wetewete i tēnei whārite kia kimi i te unahi.

#### 2. Whakaingoa i a A, B, C, mete whakamahi i te ture $A \times C$ :

Nā, ka tapaina ko:

$$A = 2, \quad B = -11, \quad C = 12$$

Nā, ka whakamahi i te ture  $A \times C$ .

$$A \times C = 2 \times 12 = 24$$

Ināianei me kimi i ngā tauwehe nui rawa o 24, me ngā hei tāpiri kia tae atu ki te -11.

Nā ko **-3** me **-8**, ērā nama i te mea:

$$-3 \times -8 = 24 \quad -3 + -8 = -11$$

#### 3. Whakawehe i te whārite:

$$Y = 2x^2 - 3x - 8x + 12$$

$$Y = (2x^2 - 3x)(-8x + 12)$$

#### 4. Whakawhānau i ngā nama, ā, ka tangohia ngā tauwehe.

$$Y = (2x^2 - 3)(-8x + 12)$$

$$Y = x(2x - 3) - 4(2x - 3)$$

Nā, ka whakakotahi i a  $x$  me -4 i te mea kei waho rāua i te taiapa, ā kei te kite hoki au he ōrite a  $(2x - 3)$  me  $(2x - 3)$ , nō reira ka tangohia i tētahi kia pēnei noa:

$$Y = (x - 4)(2x - 3)$$

#### 5. Kimi i te haukotinga $x$

$$x - 4 = 0 \quad 2x - 3 = 0$$

$$x = 0 + 4$$

$$x = 4$$

$$x = 0 + 3 / 2$$

$$x = 3/2$$

$$x = 1.5$$

### 6. Kimi i te nama e noho ana ki waenga i ngā pakiaka e rua ( $x$ ).

Tuataki ake ka tāpiri i te uara o ngā pakiaka  $x$ .

$$1.5 + 4 = 5.5$$

Kātahi ka whakawehea ki te 2, nā te mea kei te hiahia i te nama e noho ana i wāenga i ngā pakiaka e rua.

$$5.5 / 2 = 2.75$$

### 7. Kimi i te Akitū o te unahi:

Nā, ka tōaitia te whārite matua a:

$$Y = 2x^2 - 11x + 12$$

Kia kimi i te akitū, me pēnei:

$$Y = 2(2.75)^2 - 11(2.75) + 12$$

$$2.75^2 = 7.5625$$

$$-11 \times 2.75 = -30.25$$

$$7.5625 \times 2 = 15.125$$

Ā, ka whakakotahi i ēnei nama katoa:

$$Y = 15.125 - 30.25 + 12$$

Ka puta ko tāku Y:

$$Y = -3.125$$

### 8. Kimi i te haukotinga Y

$$Y = 2(0)^2 - 11(0) + 12 = 12$$

### Whakautu:

He unahi te āhua o tēnei kauwhata. Ko ngā pūwahi e rua o  $x$  ko (4, 1.5). Ko ngā pūwahi e rua o te akitū ko (2.75, -3.125). Nā, ko ngā pūwahi e rua o te haukotinga Y ko (0, 12).

E ai ki aku tātaitanga, i te wā o te akitū, e tohu ana tērā i te wā e tika ana kia rau atu ngā pepa hei whakarite i te rua mō te ahi. Kātahi i te wā ka tae atu ki te tuaka  $x$ , koia tērā e tohu ana i te wā tika kia tahu i te ahi. Nā, i te wā ka tae atu ki te haukotinga Y, he tohu tērā ki au mō te wā e tika ana kia rau atu ngā kōhatu.

# Tauira 1 – Rōrahi

Ināianeī, ka kaute i te nui o te kai hei whāngai i te kotahi rau tāngata mō te hākari o te hautapu.

Ka whakamahia e au te rōrahi hei kimi i te nui o te kai ka noho ki ia pereti.

Mā te whakamahi i te rōrahi, ka mārama ahau mehemea ka orite te kai mō te katoa.

E whai ake nei ko te ture ka whāia e au kia tutuki ai te pāngarau - rōrahi.

$$V = \pi r^2 h$$

He 40cm te whitianga o te pereti, ā, ko tāku e whakapae nei, ka 5cm te maha o te kai ki runga i ia pereti.

Hatepe 1 - kimi i te uara o 'r', te pūtoro o te pereti.

$$r = \text{whitianga} / 2$$

$$r = 40\text{cm} / 2 = 20\text{cm}$$

Hatepe 2 - ki te kimi i te rōrahi o te kai ki runga i te pereti, ka whakamahi i te ture o:

$$V = \pi r^2 h$$

$$V = \pi(20\text{cm})^2 \times (5\text{cm})$$

$$V = \pi(400\text{cm}) \times (5\text{cm})$$

$$V = 6280\text{cm}^3$$

## Whakautu:

He  $6280\text{cm}^3$  te rōrahi o te kai e noho ana ki runga i ia pereti. Nā reira ki te kimi i te nui o te kai hei whāngai i te kotahi rau tāngata, ka whakarea i tēnei whakautu ki te 100. Ko te whakautu o tērā ko tēnei,  $628,000\text{cm}^3$ .

Heoi, ināianeī kei te hiahia au te panoni i tēnei. Kia huri i te ine mai te henemita ki te mita. Nā reira,

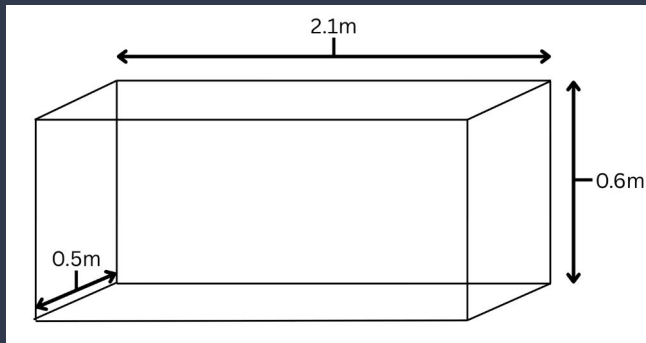
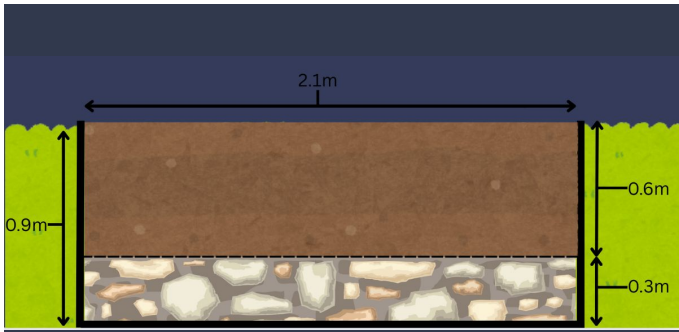
$$1 \text{ mita} = 100 \text{ henemita}$$

$$1\text{m}^3 = (100\text{cm})^3 = 1,000,000$$

(orite ki te mahi  $100 \times 100 \times 100 \times$ )

Nā reira, ka:

$$628,000\text{cm}^3 / 1,000$$



I runga i ēnei mōhioranga katoa, ko tāku mahi ināiane he kimi i te nui o te rua hāngi kia āhei te kotahi rau rourou kai / pereti kai te kuhu atu.

$$2.1\text{m} \times 0.6\text{m} \times \lambda' = 0.6280\text{m}^3$$

$$\text{Nā reira, } \lambda' = 0.6280\text{m}^3 / (2.1 \times 0.6)$$

$$\lambda' = 0.6280\text{m}^3 / 1.26\text{m}^2$$

$$\lambda' = 0.4984^2$$

$$\lambda' = 0.49\text{m}^2$$

$$\lambda' = 0.5\text{m}^2$$

Nā, i runga i te mōhio i te whāroa me te hohonu o te rua, kua kimi au i te whānui:

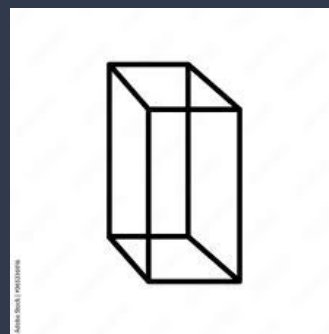
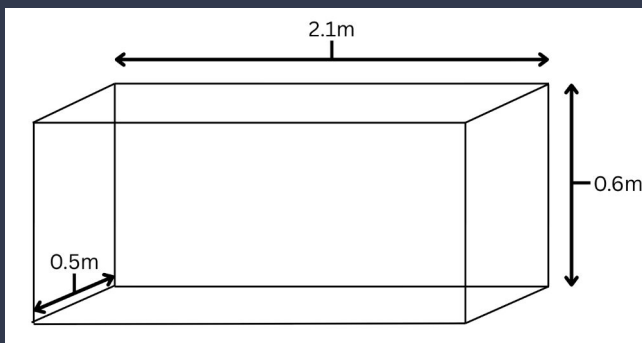
$$2.1\text{m} \times 0.6\text{m} \times 0.5\text{m} = 0.63\text{m}^3$$

### Whakautu:

Ahakoā he papaku, he papatahi tāku rua hāngi, he whānui tonu. Ko te pāinga o te rua papaku / papatahi, ka tunua katoatia ngā kai, ka mutu, ka tere ake.

Nā, ki te whakaaro mō tētahi rua hāngi hohonu, whīroki hoki, ka tahu pea ngā kai ō raro i te mea he tata ake ngā kai ki te ahi, heoi ko ngā kai ō runga, kua mata tonu.

Nā reira, he pai ake tāku rua hāngi papatahi, tēnā i tētahi mea hohonu, whīroki hoki.



## Kairangi

**Wāhanga Ako:** Pāngarau

**Paerewa:** 92068

**Total Score:** 07/08

<b>Pātai</b>	<b>He Pitopito Kōrero</b>
Tahi	<p>E māraakerake ana kua eke tēnei ākonga ki te Kairangi mō te paerewa 92067. Ka whakamahia whānuitia ngā tikanga pāngarau i te horopaki rua hāngī: ka tātai horahanga me te rōrahi, ka whakamahi pāngarau pākoki, te ture Pythagoras, me ngā whārite rārangi me te unahi hei whakaatu i te hononga o te pāmahana me te wā. Ka waihanga kauwhata, ka kimi haukotinga me te akitū, ā, ka whakamārama rawatia ngā hātepe katoa me te tika o te reo pāngarau. Ka hāpono hokitia ngā otinga mā tētahi atu tikanga (hei tauira, te whakamahi i te Pythagoras hei tiro tiro i te hua o te pākoki), ā, ka wānanga hoki i te tika o te tauira ki te ao. E whakaatu ana tēnei i te mōhio hōhonu, te whakaaro tūhonohono me te whakaaro waitara, e hāngai pū ana ki te taumata Kairangi.</p>