Hei whakaoti mā te ākonga

Te ingoa: _____

NSN | | | | | | | | | | |

Te tau ā-kura | | | | |

SUPERVISOR'S USE ONLY

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

Tuhia he (☒) ki te pouaka mēnā kāore koe i tuhi kōrero ki tēnei puka ☐

+

32406M TE WĀHANGA 2

NZQA

Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Te Whakamahinga Tātai, 2024

32406M Te whakamahi pāngarau me te tauanga i ngā momo horopaki o ia rā

Ngā whiwhinga: Tekau

NGĀ HUA	
1	Whakatakotoria he ara ā-pāngarau, ā-tauanga hoki hei whakaoti rapanga i ngā momo horopaki o ia rā.
2	Whakamahia te pāngarau me te tauanga hei whakatutuki i ngā whāinga ā-whakamahinga tātai o ngā momo horopaki o ia rā.
3	Whakamāramahia ngā urupare ā-pāngarau, ā-tauanga hoki ki te horopaki.

Tuhia tō Tau Ākonga ā-Motu (NSN) me tō Tau ā-Kura ki te wāhi e wātea ana ki runga.

Me whakamātau koe i ngā tūmahi KATOA kei roto i tēnei pukapuka.

Ki te hiahia wāhi atu anō koe mō ō tuhinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka.

Tirohia kia kitea ai e tika ana te raupapatanga o ngā whārangi 2–37 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

Kaua e tuhi ki tētahi wāhi e kitea ana te kauruku whakahāngai ( ). Ka poroa taua wāhi ka mākahia ana te pukapuka.

HOATU TĒNEI PUKAPUKA KI TE KAIWHAKAHAERE Ā TE MUTUNGA O TE WHAKAMĀTAUTAU.

TE TŪMAHI TUATAHI: Te Tuatara

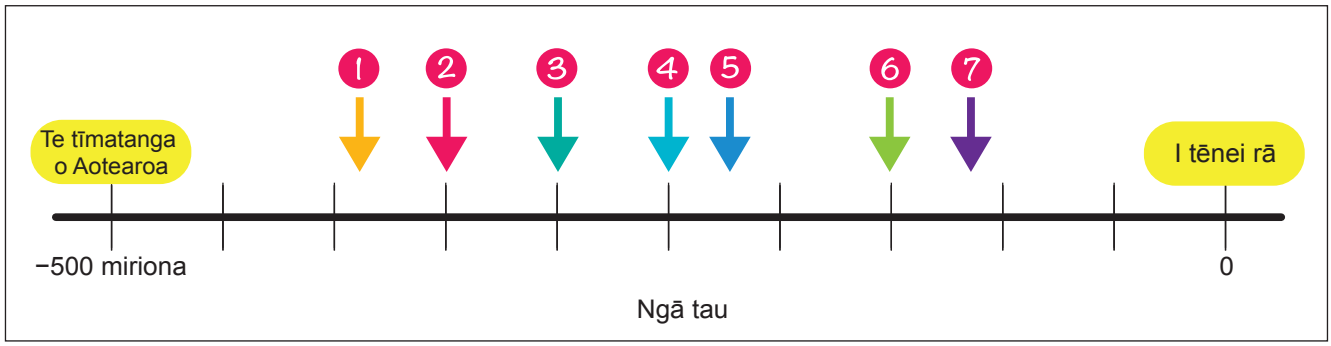
Ko Aotearoa te kāinga o te mokouki whakamutunga e ora tonu ana – o te tuatara.

I puta tuatahi mai te tuatara ki te ao i ngā tau e 225 miriona ki muri.

E tohu ana ngā toka tawhito katoa, kua neke atu i te 500 miriona tau te pakeke o Aotearoa.

(a) I te rārangi wā o raro iho nei, **porohitatia te pere** e whakaatu ana i te 225 miriona tau ki muri.

Ko tētahi tuatara i runga i tētahi poro rākau



Kai ai te tuatara i te kararehe iti, pēnei i te wētā, i te noke, i te pāpapa, me te pūngāwerewere.

Kotahi manokaramu te taumaha o te tuatara.

E 25 karamu te taumaha o te wētā.

(b) **E hia whakareanga te taumaha ake** o te tuatara i tō te wētā?

_____ whakareanga te taumaha ake

Ko tētahi tuatara e kai ana i tētahi wētā

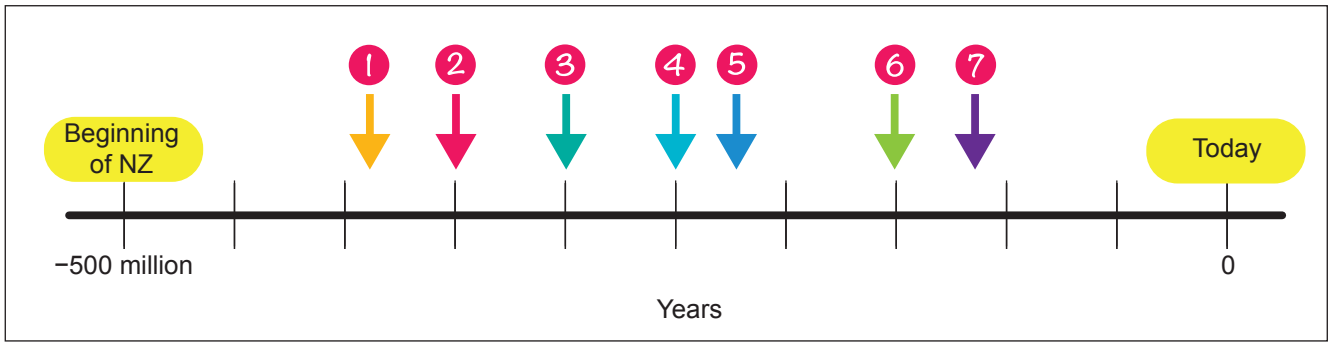
QUESTION ONE: Tuatara

New Zealand is home to the last surviving dinosaur – the tuatara. Tuatara first lived about 225 million years ago.

The oldest rocks show New Zealand is at least 500 million years old.

(a) On the timeline below, **circle** the arrow that shows 225 million years ago.

A tuatara on a log



Tuatara eat small animals, such as wētā, worms, beetles, and spiders.

The tuatara weighs one kilogram.

The wētā weighs 25 grams.

(b) How **many times heavier** is the tuatara than the wētā?

_____ times heavier

A tuatara eating a wētā

E tata korehāhā ana te tuatara.

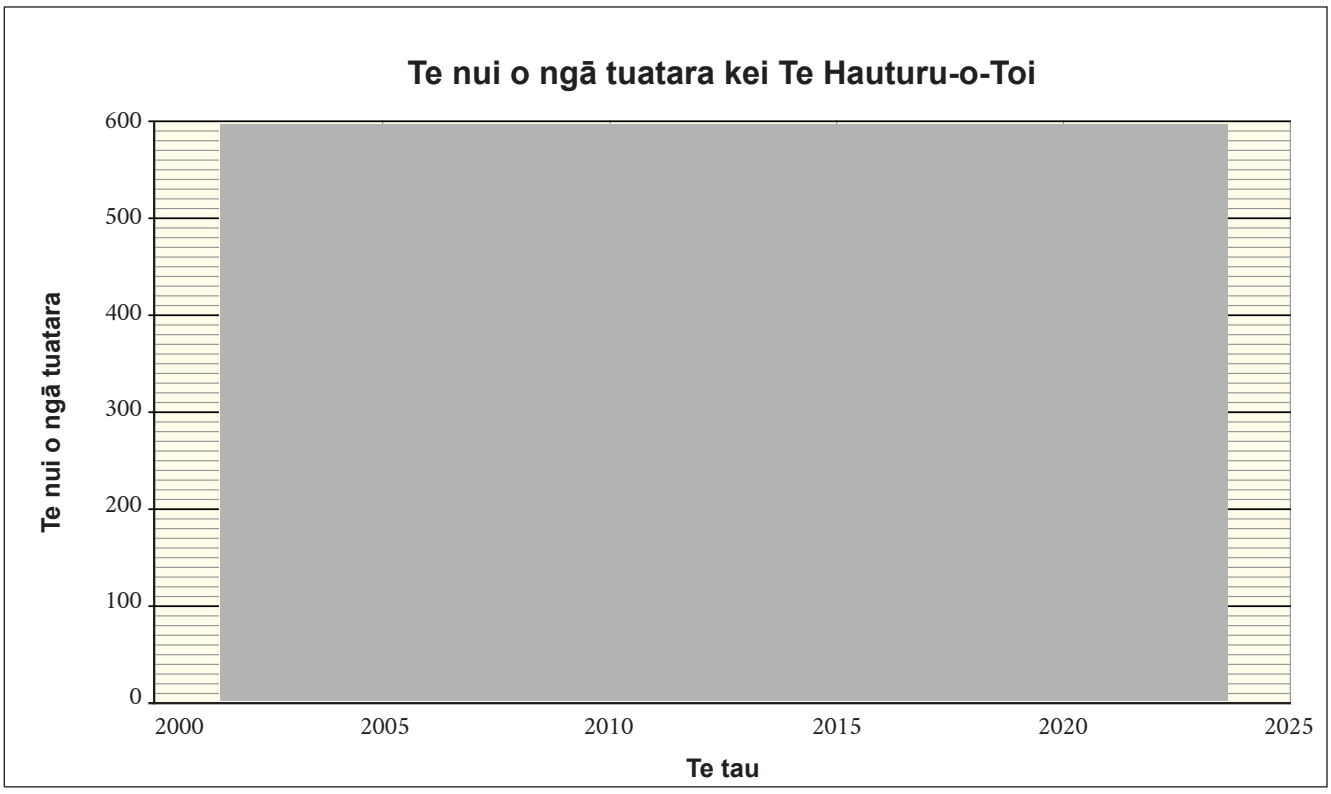
Kua whakaritea tētahi hōtaka whakatipu tuatara.

E 6–10 ngā hua ka whānauhia e te tuatara uwha i ia whā tau. Ka 11–16 marama te roa kia pao mai ngā hua.

Ko tētahi tuatara e pao ana i tētahi hua

(c) Ki te ora ngā hua katoa, tōna hia nei ngā tuatara ka puta i **tētahi** uwha i ngā tau 10? Whakaaturia ngā tātainga i whakamahia rā e koe e puta ai tō whakautu.

E waru noa iho ngā tuatara e noho tonu ana ki Te Hauturu-o-Toi i te tau 2004. I whakakorea katoatia ngā kiore i te moutere i te tau 2006, ā, 100 ngā tuatara kātua i tukuna ki te moutere. E whakaatu ana te kauwhata nei i te nui o ngā tuatara i te takanga o te wā.



(d) Tōna hia nei ngā tuatara i Te Hauturu-o-Toi i te tau 2012?

_____ tuatara

Tuatara are endangered.

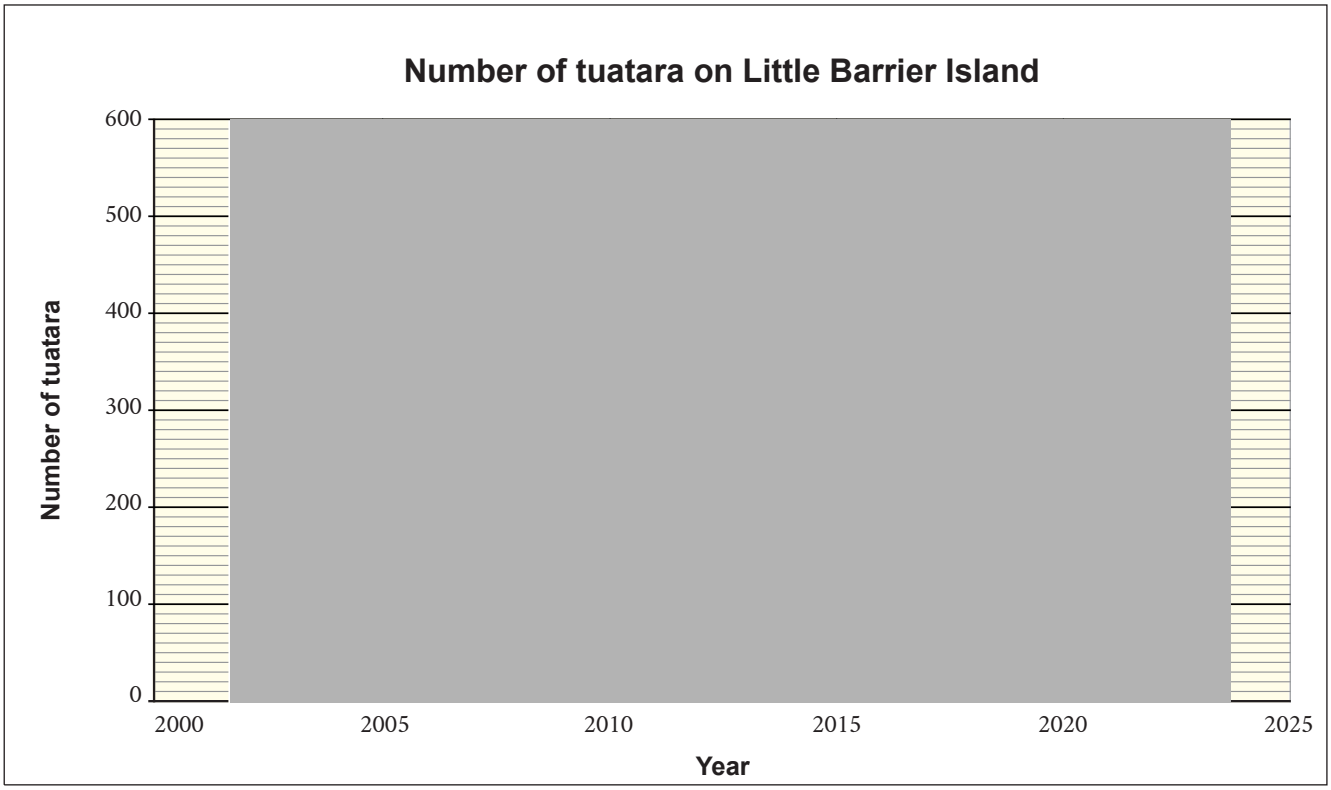
A breeding programme for tuatara has been set up.

A female tuatara lays 6–10 eggs every four years. The eggs take 11–16 months to hatch.

A tuatara hatching from an egg

(c) If all the eggs survive, about how many tuatara would you expect to get from **one** female in 10 years? Show the calculations you used to get your answer.

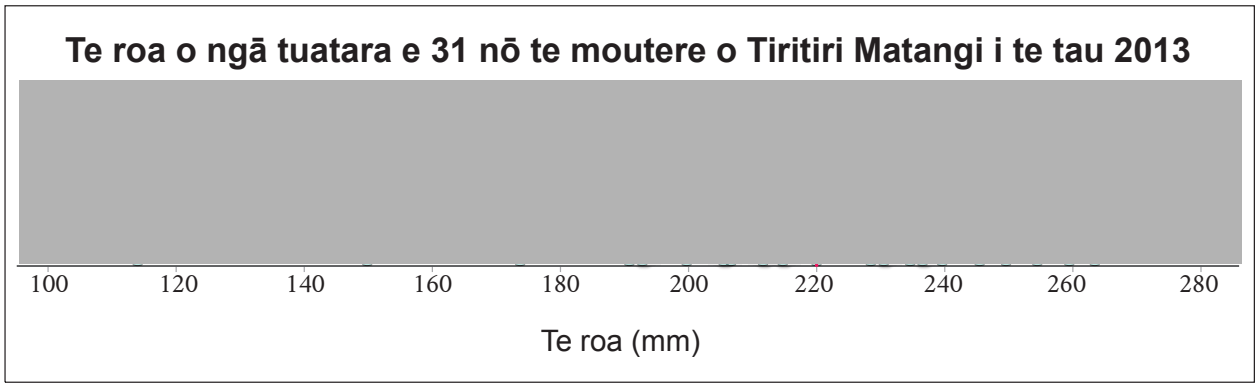
Only eight adult tuatara remained on Little Barrier Island in 2004. The island was made rat-free in 2006 and 100 adult tuatara were released on the island. This graph shows tuatara numbers over time.



(d) About how many tuatara were on Little Barrier Island in 2012?

_____ tuatara

I te tau 2003, e 60 ngā tuatara kātua i tukuna ki te moutere o Tiritiri Matangi. Ka taka ngā tau tekau, e 31 ngā tuatara i kitea, ā, ka inea te roa o ō rātou tinana. Ko te rārangi ira te tau waenga o te roanga o ngā tinana.



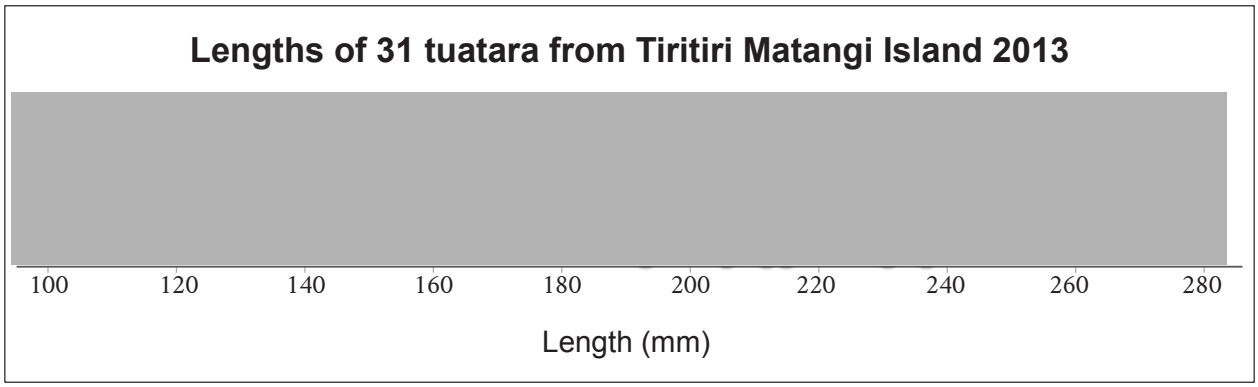
(e) E tohu ana rānei te kauwhata kua nōhia te moutere e ētahi tuatara kūao? Whakamāramahia tō whakautu mā te whakamahi i ngā tau kei te kauwhata.

Ko te haurua o ngā tuatara i Aotearoa e noho ana i tētahi moutere tōna 95 manomita nei te tawhiti ki te uru-mā-raki o Te Whanganui-a-Tara.

Te mahere o Aotearoa e whakaatu ana i a Te Whanganui-a-Tara

(f) Tuhia mai te pū e tohu ana i te wāhi kei reira rā te moutere. Whakamahia te āwhata kei te mahere hei āwhina i a koe.

In 2003, 60 adult tuatara were released on Tiritiri Matangi Island. Ten years later, 31 tuatara were found, and their body lengths were measured. The dotted line is the median body length.



(e) Does the graph suggest that there are now young tuatara on the island? Explain your answer using numbers from the graph.

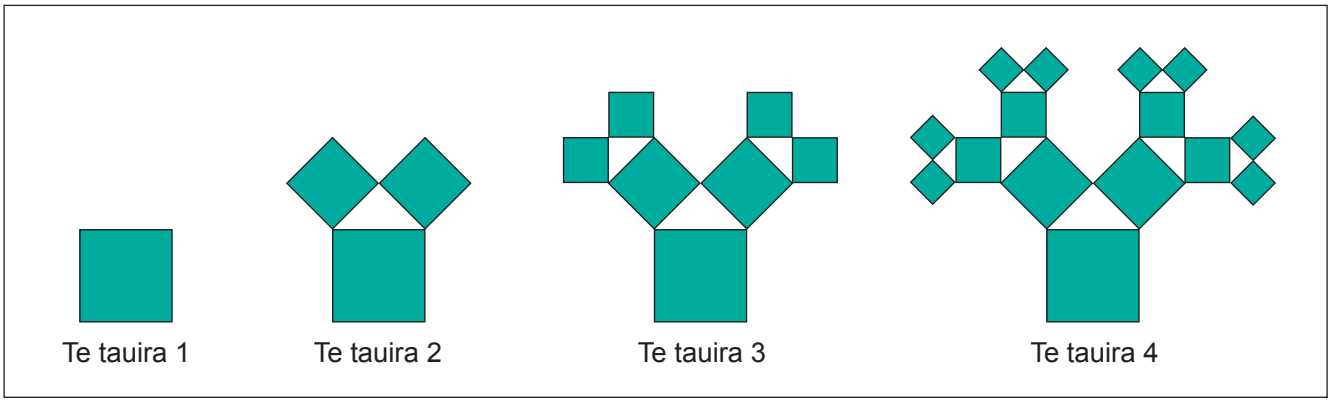
Half of all the tuatara in New Zealand live on an island that is about 95 km northwest of Wellington.

Map of New Zealand showing Wellington

(f) Write the letter that shows the location of the island. Use the scale on the map to help you.

TE TŪMAHI TUARUA: Te Toi

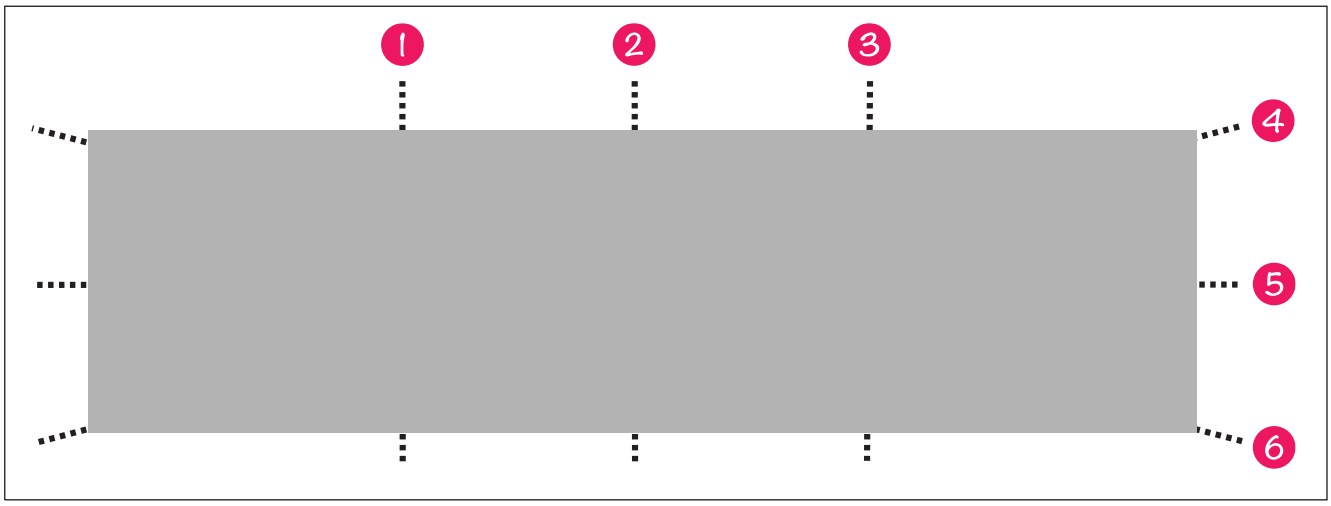
Ka waihangatia e Nicole tēnei hoahoa o te rākau e tipu ana.



(a) E waihangatia ai te **Tauira 5**, me hia rawa te tapeke o ngā tapawhā a Nicole?
Me whai wāhi atu ki te tapeke ngā tapawhā katoa, ahakoa te nui.

E waihanga ana a Ariana i tētahi hoahoa hou mō te tīpare rānei, mō te kōpare rānei, mō tana kapa haka.

E whakaaturia ana te hoahoa a Ariana ki raro iho nei.



Te tīpare, te kōpare rānei

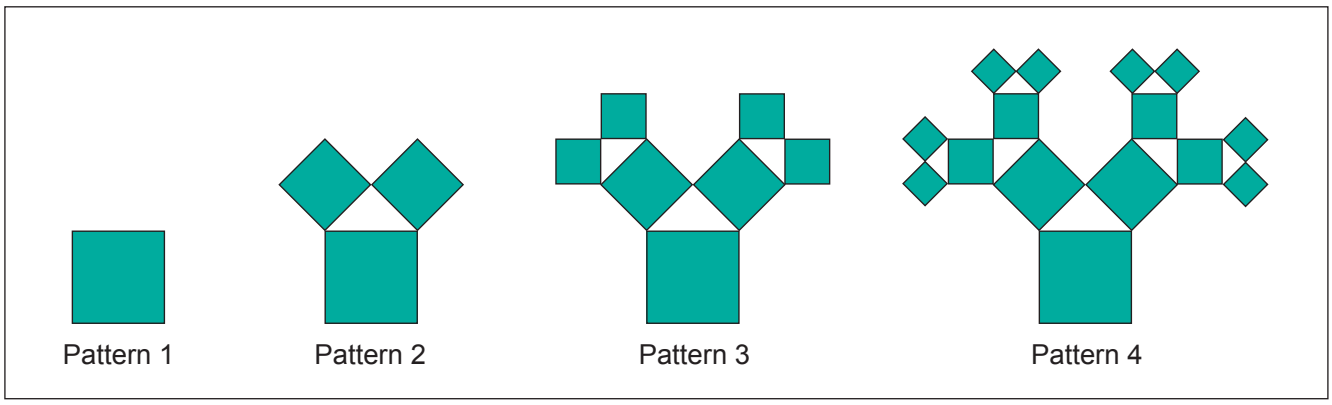
(b) Ko ēhea tau e whakaatu ana i ngā rārangi hangarite **whakaata** i te hoahoa a Ariana?

Tohua (✓) ngā porohita kei te taha o ngā tau e tika ana ki raro iho nei. E nui ake ana i te kotahi te whakautu.

1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○

QUESTION TWO: Art

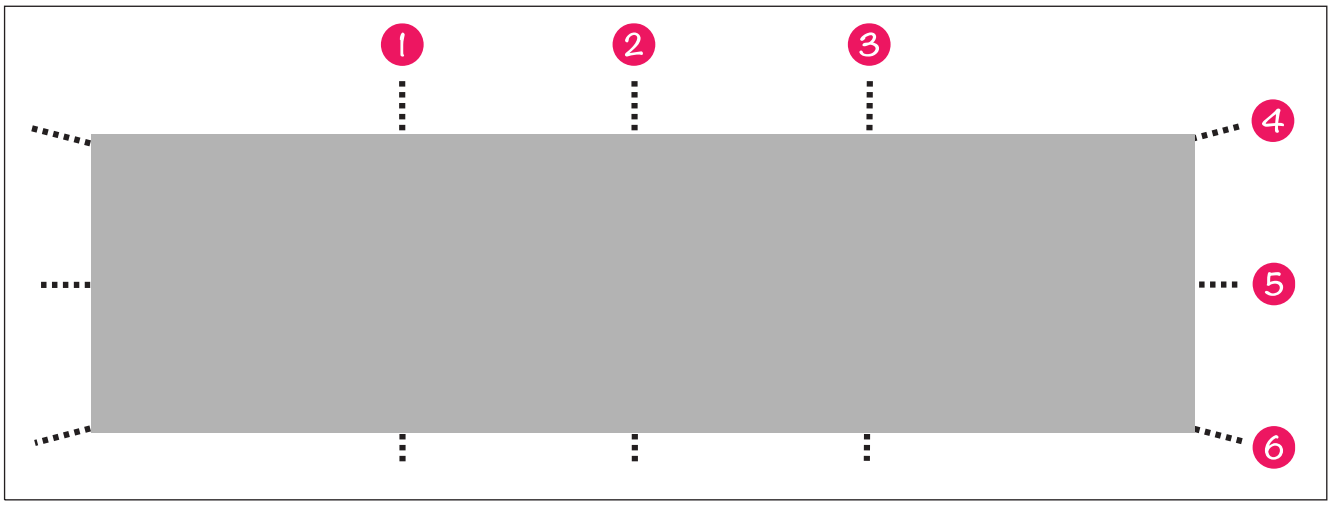
Nicole creates this growing tree design.



(a) To create **Pattern 5**, how many squares would Nicole need, in total?
Include all squares of different sizes.

Ariana is making a new tīpare or kōpare (headband) design for her kapa haka group.

Ariana's design is shown below.



Tīpare or kōpare (headband)

(b) Which numbers show lines of **reflection** symmetry in Ariana's design?

Tick (✓) the circle next to the correct numbers below. There is more than one answer.

1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○

E whakaaturia ana i te hoahoa kei te taha mauī ngā hautau e rite tonu ana te kitea i ngā kanohi o te tangata.

Ngā hautau i te kanohi o te tangata e rite tonu ana te kitea

Tētahi pakiwaituhi o te kanohi o Richie McCaw

(c) I te pakiwaituhi, kei te wāhi tika te pito whakararo o te ihu o Richie?
Whakamahia ngā hautau i te hoahoa me te pakiwaituhi hei whakamārama i tō whakautu.

Kei raro nei tētahi whakaahua o tētahi tāraitanga i tētahi pāka i Te Tai Tokerau. Kua hangaia te tāraitanga i te maitai, he whero me te pango ōna tae. Kei te taha matau te tirohanga ā-mua me te tirohanga ā-taha-matau o te tāraitanga.

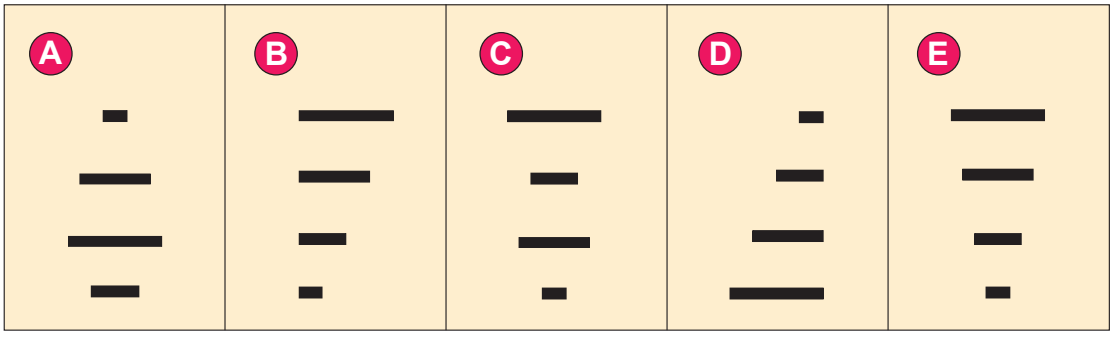
Te tāraitanga o *Untitled* nā Richard Thompson

Te tirohanga ā-mua

Te tirohanga ā-taha-matau

(d) Ko tēhea pū o raro iho nei e whakaatu ana i te tirohanga ā-runga e tika ana o te tāraitanga?

Porohitatia ◯ te **pū** e tika ana.



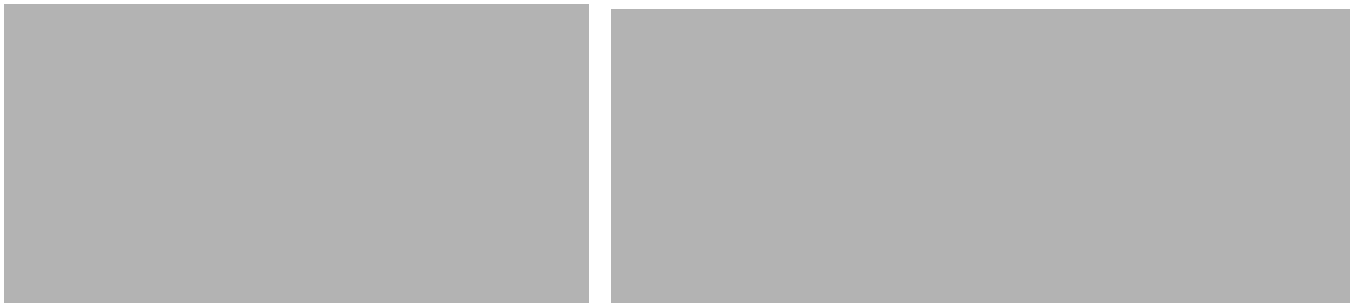
The diagram on the left shows fractions that are usually found in human faces.

Usual fractions in a human face

Cartoon of Richie McCaw's face

(c) In the cartoon, is the bottom of Richie's nose in the right place?
Use fractions from both the diagram and cartoon to explain your answer.

Below is a photo of a sculpture at a park in Northland. The sculpture is made of red and black steel. On the right are the front and right-side views of the sculpture.



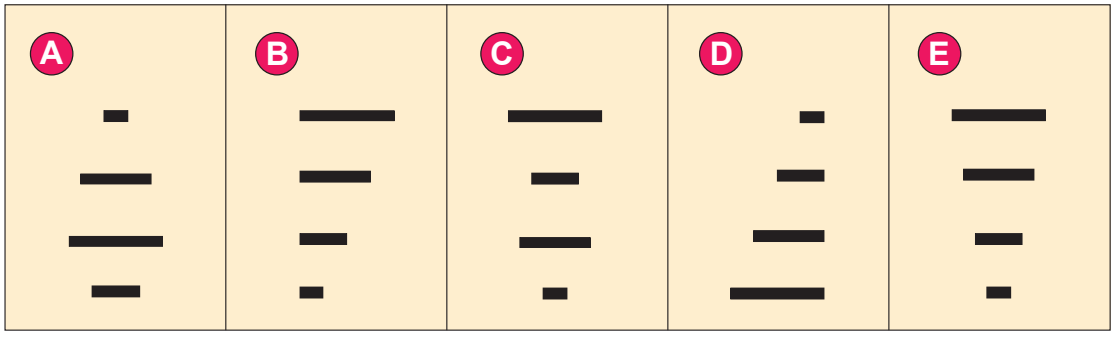
Sculpture *Untitled* by Richard Thompson

Front view

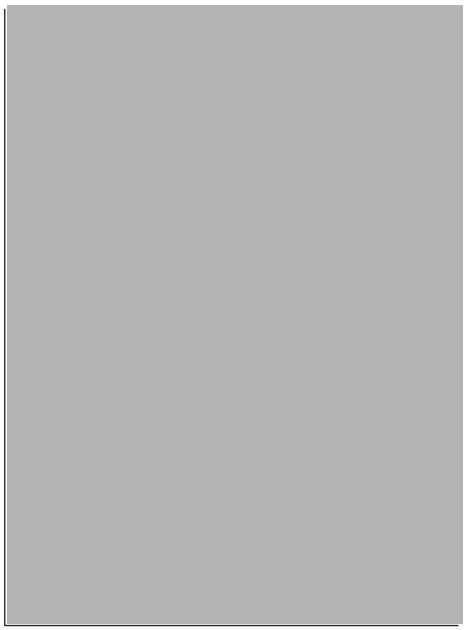
Right-side view

(d) Which letter below shows the correct top view of the sculpture?

Circle the correct **letter**.



He momo toi ngā pukapuka pakiwaituhi e nui nei te uara i ōna wā. Koinei te uhi o te pakiwaituhi Superman tuatahi rawa.



Te uhi o te pakiwaituhi Superman tuatahi

I te tau 1979, $1,000 (ā-tāra Amerikana) ka riro i te hokonga atu o te pakiwaituhi. I te tau 2022, e $2.6 miriona (ā-tāra Amerikana) ka riro i te hokonga atu.

(e) E hia ngā pakiwaituhi e $1,000 ana te utu ka hokona ki te $2.6 miriona?

Tohua (✓) te whakautu e tika ana.

- E 26 ◯
- E 260 ◯
- E 2,600 ◯
- E 26,000 ◯
- E 260,000 ◯

He tāone a Tīrau i Te Ika a Māui e rongonui ana i tana whare manuhiri e rite nei ki te kurī me ngā hipi e rua te hanga.

Te Whare Manuhiri o Tīrau

E whakaatu ana te mahere o raro iho nei, ka rima haora me te 40 meneti te roa o te hautū i Te Whanganui-a-Tara ki Tīrau.

(f) Ka hia te roa o te haerenga ki te whakaawhiwhia ki te **haora tata katoa**?

_____ ngā haora

Comic books are pieces of art that can be worth a lot of money. This is the cover of the first ever Superman comic.

In 1979, the comic sold for $US 1,000. In 2022, it sold for $US 2.6 million.

Cover of the first Superman comic

(e) How many $1,000 comics can you buy for $2.6 million?

Tick (✓) the correct answer.

- 26 ◯
- 260 ◯
- 2,600 ◯
- 26,000 ◯
- 260,000 ◯

Tīrau, a town in the North Island, is famous for its visitor centre which is in the shape of a dog and two sheep.

Tīrau Visitor Centre

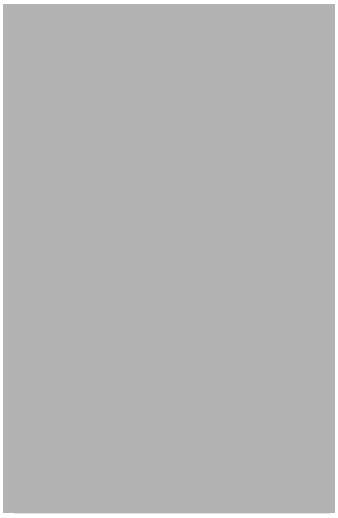
The map below shows that the drive from Wellington to Tīrau will take five hours and 49 minutes.

(f) How much time is that rounded to the **nearest hour**?

_____ hours

TE TŪMAHI TUATORU: Te wai

Ka 15 rita te nui o te wai i te pātara wai nunui ka kī ana te pātara, ā, ka 15.352 manokaramu te taumaha.



He pātara wai nunui

(a) E hia te taumaha, ā-**karamu** nei, o te pātara wai e **piako** ana?
Kia mōhio mai koe: Kotahi manokaramu te taumaha o te rita kotahi o te wai.

_____ karamu (g)

1.5 rita te nui o te wai kei tēnā, kei tēnā o ngā pātara e toru o raro.

E toru ngā pātara wai, 1.5 rita te rōrahi, me tētahi karāhe e 300 miririta te rōrahi

(b) E hia ngā karāhe, e 300 mL te rōrahi, ka whakakīa e koe i ngā pātara **e toru katoa** nei?

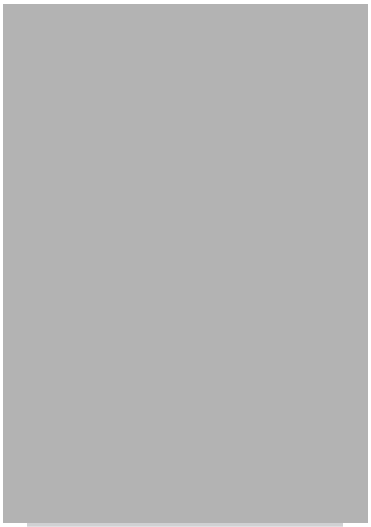
_____ ngā karāhe e 300 mL te rōrahi

Kei te takiwā o te 75% te nui o te wai i te tinana o te punua poaka. Mō ngā poaka kātua, kei te takiwā kē o te 50%. E 8 manokaramu te taumaha o te punua, ā, 120 manokaramu te taumaha o te poaka kātua.

(c) E hia te **nui ake o te wai**, ā-manokaramu nei, kei te tinana o te poaka kātua, tēnā i te wai kei te tinana o te punua poaka?

_____ manokaramu (kg)

QUESTION THREE: Water



Large water bottle

The large water bottle holds 15 litres of water when it is full, and weighs 15.352 kilograms.

(a) How much does the **empty** water bottle weigh, in **grams**?
Note: One litre of water weighs one kilogram.

_____ g

Each of the three bottles below holds 1.5 litres of water.

Three 1.5 L water bottles and a 300 mL glass

(b) How many 300 mL glasses can you fill from **all three** bottles?

_____ 300 mL glasses

Water makes up about 75% of a piglet's body weight. For adult pigs, the percentage is about 50%. This piglet weighs 8 kilograms, while the adult pig weighs 120 kilograms.

(c) How **much more water**, in kilograms, does the adult pig have in their body than the piglet has in their body?

_____ kg

I ētahi tāone, me utu ngā tāngata i te nui o te wai ka whakamahia e rātou.

Anei te nama wai a Cindy mō te **marama kotahi**.

Ngā Ratonga a Wai Mā		
Te nui i whakamahia (m^3)	**Te pāpātanga ($/m^3$)**	**Te nama ($)**
24.8	?	$35.96

(d) E hia te utu a Cindy i ia mita pūtoru (m^3) o te wai ka whakamahia?
Kia mōhio mai koe: Ko te $/$m^3$ te utu o ia mita pūtoru.

$ _____

E hiahia ana te whānau o Tala kia iti iho tā rātou whakamahi i te wai. Tokoono rātou kei te whānau o Tala.

E rua ngā whakaaro o Tala mō te tiaki wai:

- Ko te whakapoto i te hīrere i ia rā ki te rua meneti ki ia tangata.
- Ko te whakamahi i te pūrere horoi kākahu i ia rua rā, kaua i ia rā.

Te mahi	Te wai e whakapaetia ana ka whakapaua
Te whakamahi i te ngongo wai mō ngā meneti 10	150 ngā rita
Te kaukau i te tāpu (e hangere ana)	80 ngā rita
Te hīrere (e whā meneti)	48 ngā rita
Te hīrere (e waru meneti)	96 ngā rita
Te whakakā i te pūrere horoi kākahu (ka rau kaka mā mua, ā, e 6 manokaramu ana te rōrahi)	60 ngā rita

(e) Ka nui ake te tiakina o te wai i tēhea o ngā whakaaro e rua o Tala?

Whakamāramahia tō whakautu mā te whakamahi i ngā kōrero kei te tūtohi.

In some cities, people pay for the amount of water they use.

Here is Cindy's water bill for **one month**.

Wai Mā Services		
Amount used (m^3)	**Rate ($/m^3$)**	**Charge ($)**
24.8	?	$35.96

(d) How much does Cindy pay for each cubic metre (m^3) of water used?
Note: $/$m^3$ means dollars per cubic metre.

$ _____

Tala's whānau want to use less water. There are six people in Tala's whānau.

Tala has two ideas for saving water:

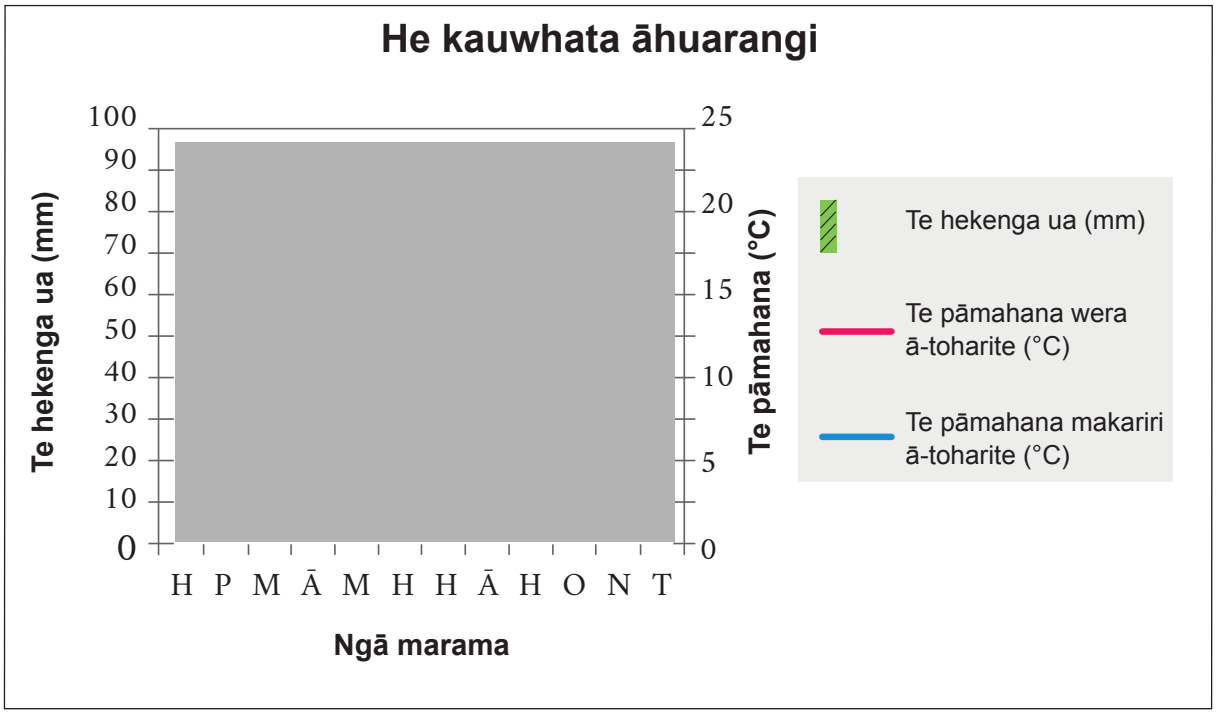
- Cutting the daily shower time to two minutes per person.
- Running the washing machine once every two days rather than every day.

Activity	Estimated water use
Using a hose for 10 minutes	150 litres
Having a bath (half full)	80 litres
Having a shower (4 minutes)	48 litres
Having a shower (8 minutes)	96 litres
Running a washing machine (6 kg front loader)	60 litres

(e) Which of Tala's two ideas would save the most water?

Explain your answer using information from the table.

E whakaaturia ana i tēnei kauwhata te ua toharite, me te pāmahana toharite mō ia marama o te tau.

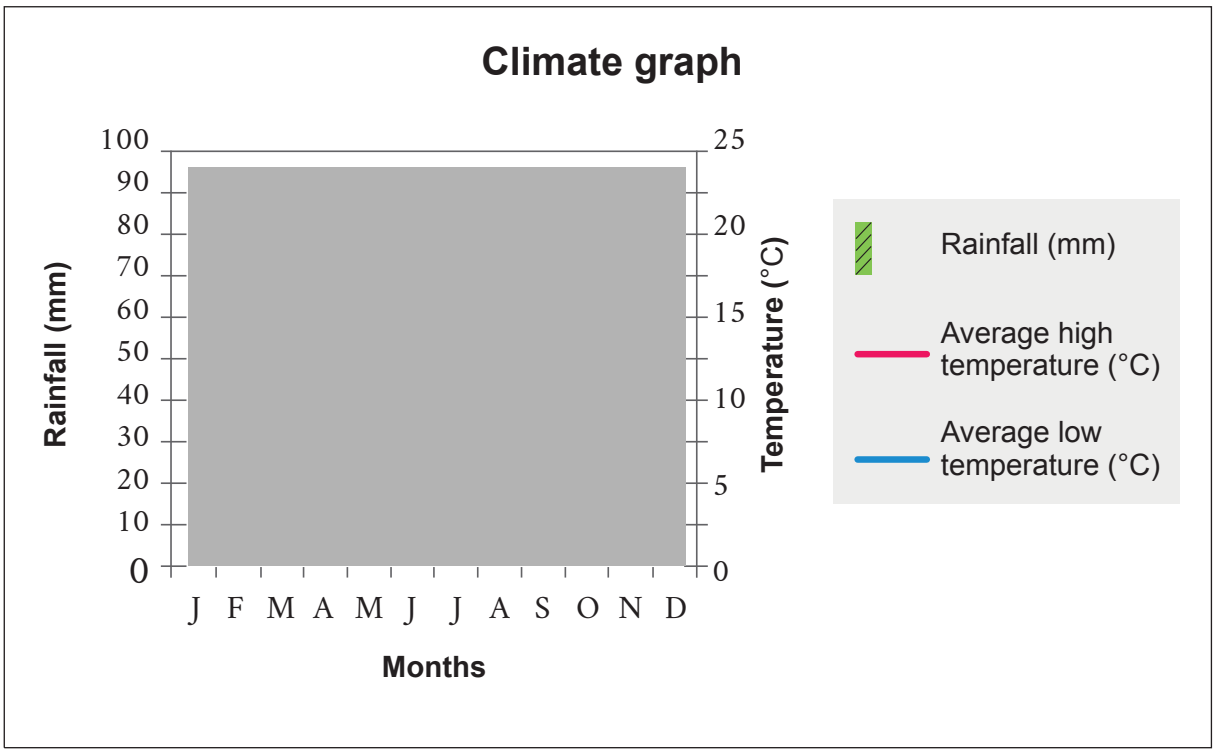


(f) Ko tēhea te **kaupeka** e nui katoa ana te ua toharite? Whakamahia ngā kōrero kei te kauwhata.

Tohua (✓) te whakautu tika i raro iho nei.

- ◯ Te raumati (Tīhema, Hānuere, Pēpuere)
- ◯ Te ngahuru (Māehe, Āperira, Mei)
- ◯ Te hōtoke (Hune, Hūrae, Ākuhata)
- ◯ Te kōanga (Hepetema, Oketopa, Noema)

This graph shows the average rainfall and temperature for each month of the year.



(f) Which **season** has the highest average rainfall? Use information from the graph.

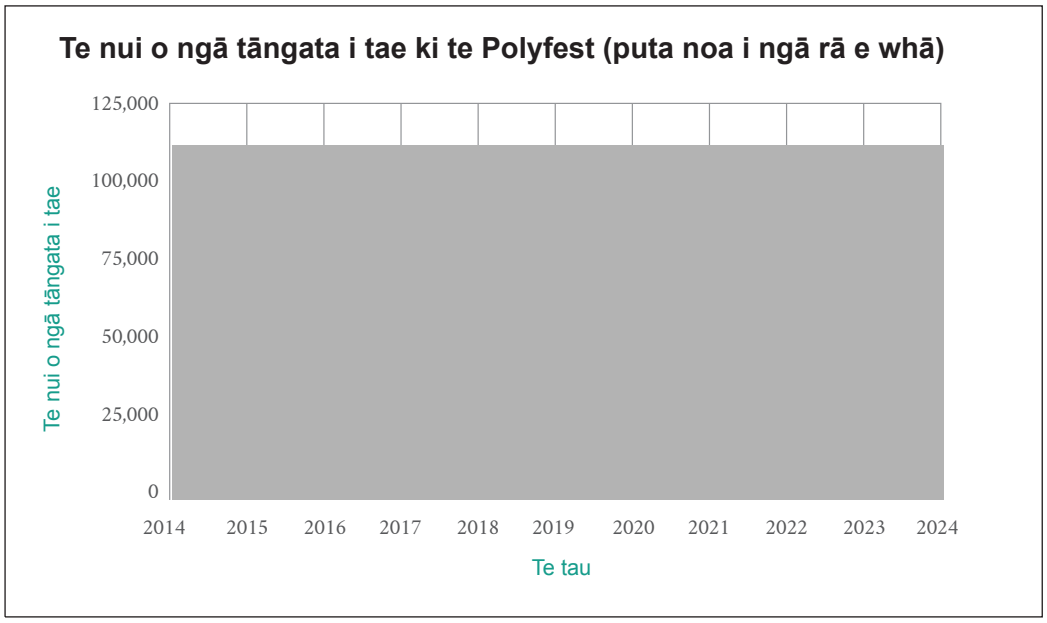
Tick (✓) the correct answer below.

- ◯ Summer (Dec, Jan, Feb)
- ◯ Autumn (Mar, Apr, May)
- ◯ Winter (Jun, Jul, Aug)
- ◯ Spring (Sep, Oct, Nov)

TE TŪMAHI TUAWHĀ: Te Polyfest

He taiopenga te Polyfest. He puoro, he kanikani, he kahu, he kauhau hoki ōna nō ngā momo ahurea o Te Moana nui a Kiwa.

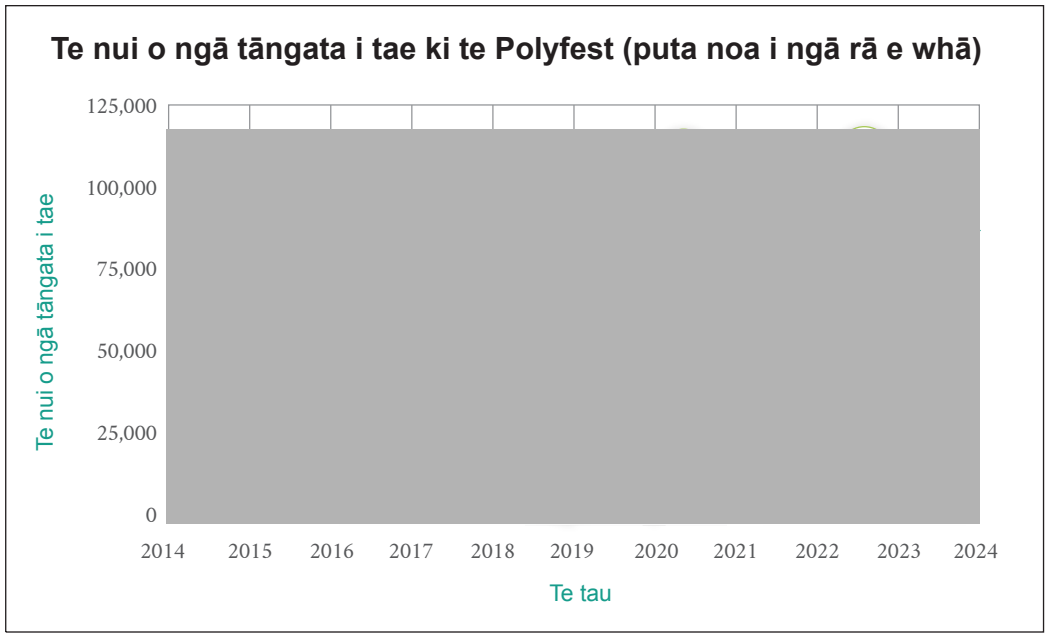
Anei tētahi kauwhata o te hunga i tae atu ki te Polyfest i roto i ngā tau.



(a) I āhua pēhea nei te **nui ake** o ngā tāngata i tae atu ki te Polyfest i te tau 2015, tēnā i te tau 2021?

_____ ngā tāngata

Hei tā ngā kaiwhakahaere i te Polyfest ka āhua 100,000 ngā tāngata ka tae ā te tau 2025.

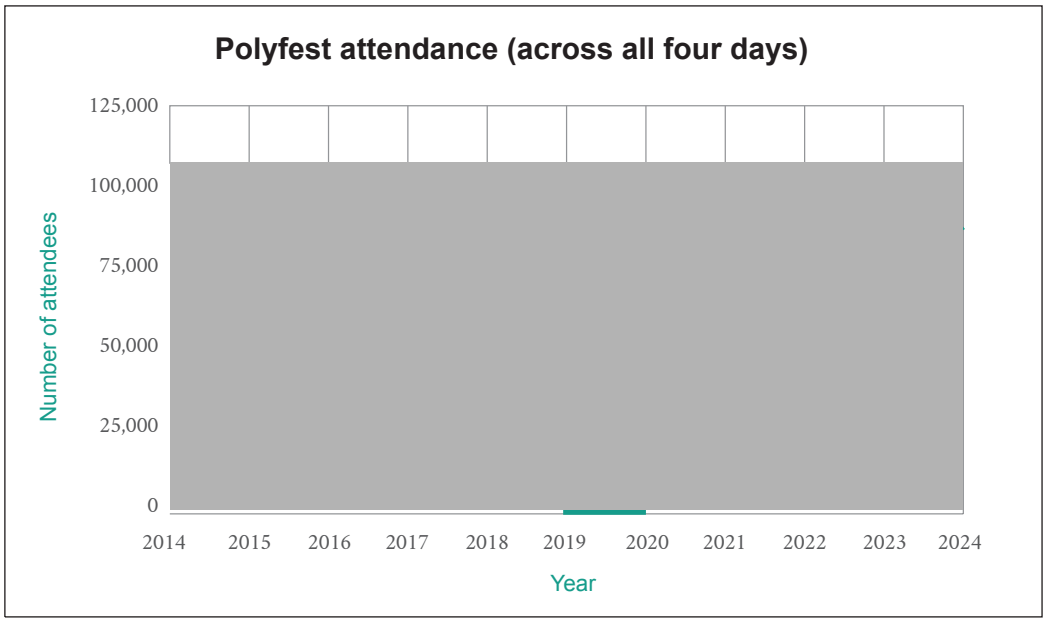


(b) E whakaae ana rānei, e whakahē ana rānei koe i ngā kōrero a ngā kaiwhakahaere? Whakamāramahia tō whakautu mā te whakamahi i ngā kōrero kei te kauwhata o runga.

QUESTION FOUR: Polyfest

Polyfest is a festival. It has music, dances, costumes, and speeches from different Pacific cultures.

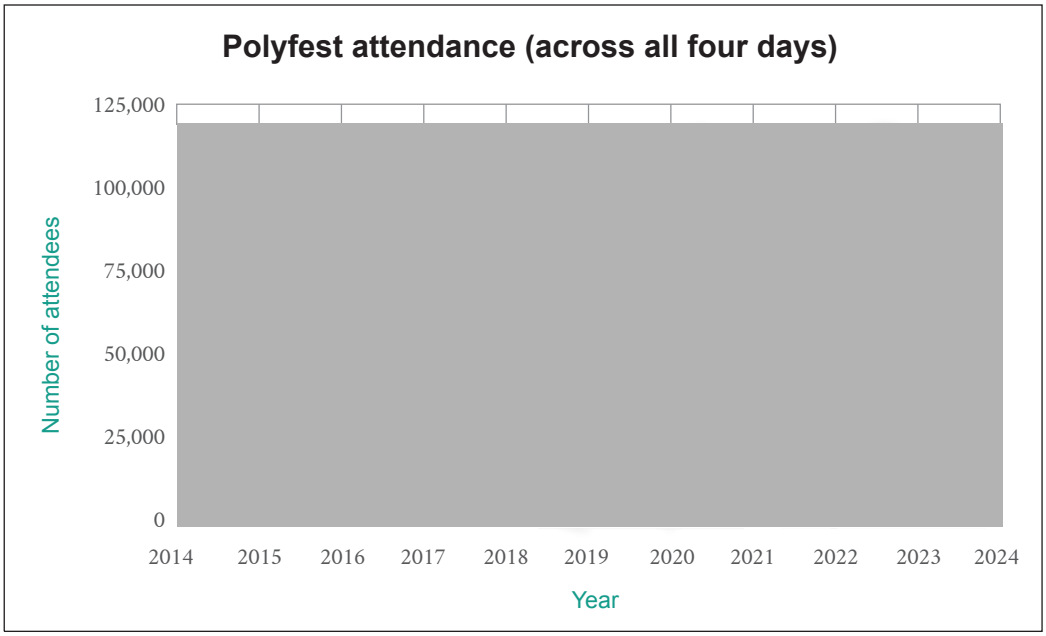
Here is a graph of people attending Polyfest over time.



(a) About how many **more** people attended Polyfest in 2015 than in 2021?

_____ people

Polyfest organisers think that the festival will have around 100,000 attendees in 2025.



(b) Do you agree or disagree with the organisers' comment? Explain your answer using information from the graph above.

Anei ngā utu o ngā tīkiti mō te Polyfest. Ki te hokona e koe ngā **Tīkiti mō te Rangi Kotahi** mō ngā rā e rua i te **ipurangi**, ka 15% te hekenga o te tapeke o te utu.

Te utu o te tīkiti mō ia tangata (He utu-kore mō ngā tamariki kei raro iho i te rima tau)	
$6.00	Te rā kotahi (Te utu ā-ipurangi – ko tētahi rā kua pūmau)
$7.00	He urunga pīngore (Te utu ā-ipurangi – ko tētahi o ngā rā)
$8.50	Te utu uru i ia rā

(c) E ono ngā pakeke kei te hiahia haere ki te Polyfest i te Hatarei me te Hanarei.

Ka hia te tapeke o te utu mō te rōpū?

$ _____

Anei te hōtaka mō te Hatarei i te atamira Māori.

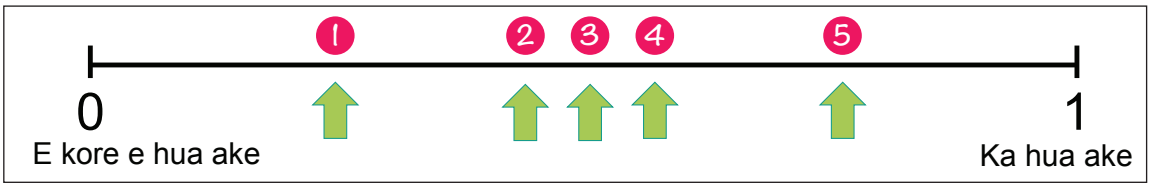
E whakaaturia ana ngā ingoa o ngā kura me ngā rohe nō reira mai ngā ākonga, arā, te pokapū, te rāwhiti, te tonga, te uru rānei.

Te atamira Māori	
Te ingoa o te kura	**Te rohe**
Te Kāreti o Moana	(Te Tonga)
Te Kāreti o East Shores	(Te Rāwhiti)
Te Kāreti o Kōwhai	(Te Tonga)
Te Kura Tuarua o Manukau Harbour	(Te Tonga)
Te Kāreti o Crestview	(Te Pokapū)
Te paramanawa	
Te Kāreti o Maungakiekie	(Te Pokapū)
Te Kura Tuarua o Tāne	(Te Uru)
Te Kura Tuarua o Southside	(Te tonga)
Te Kāreti o Redwood	(Te pokapū)
Te tina	
Te Kāreti o Kauri Park	(Te tonga)
Te Kura Tuarua o Hauraki	(Te uru)

E ōrite ana te tūponotanga ka toa tēnā me tēnā kura.

(d) He aha te tūponotanga ka toa tētahi kura nō te rohe o te tonga?

I te pouaka o raro, porohitatia ◯ te pere e hāngai ana ki te tūponotanga.



Here are the ticket prices for Polyfest. If you buy **Single Day passes** for two days **online**, you get a 15% discount off the total price.

Ticket prices per person (Free entry for children under five)	
$6.00	Single Day (Online price – fixed day)
$7.00	Flexi Pass (Online price – any single day)
$8.50	Gate entry per day

(c) Six adults want to attend Polyfest on both Saturday and Sunday.

What will the total ticket cost be for the group?

$ _____

Here is the Saturday programme for the Māori stage.

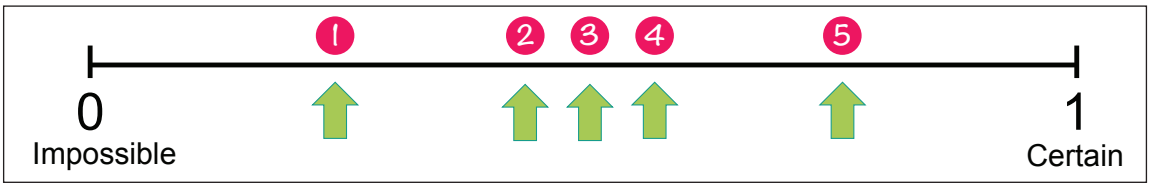
It gives the name of the school and the area students are from, i.e., CA, O, SA, or WA.

Māori stage	
Name of school	**Area**
Moana College	(SA)
East Shores College	(O)
Kōwhai College	(SA)
Manukau Harbour HS	(SA)
Crestview College	(CA)
Break	
Maungakiekie College	(CA)
Tāne HS	(WA)
Southside HS	(SA)
Redwood College	(CA)
Lunch	
Kauri Park College	(SA)
Hauraki HS	(WA)

Each school has the **same chance** of winning.

(d) What is the probability of a school from the SA area winning?

In the box below, circle ◯ the arrow that matches the probability.



Anei tētahi wāhanga o te wātaka o te ata mō te atamira Tonga me te atamira Hāmoa.

Pūmau ana te roa o ia whakaaturanga ki te atamira, ā, ka **rima meneti te whakamatuatanga i waenganui i ia whakaaturanga**.

(e) E hia te roa ake, ā-meneti nei, o ia whakaaturanga i te atamira Tonga, tēnā i ia whakaaturanga i te atamira Hāmoa?

_____ ngā meneti

Here is part of a morning's timetable for the Tongan and Samoan stages.

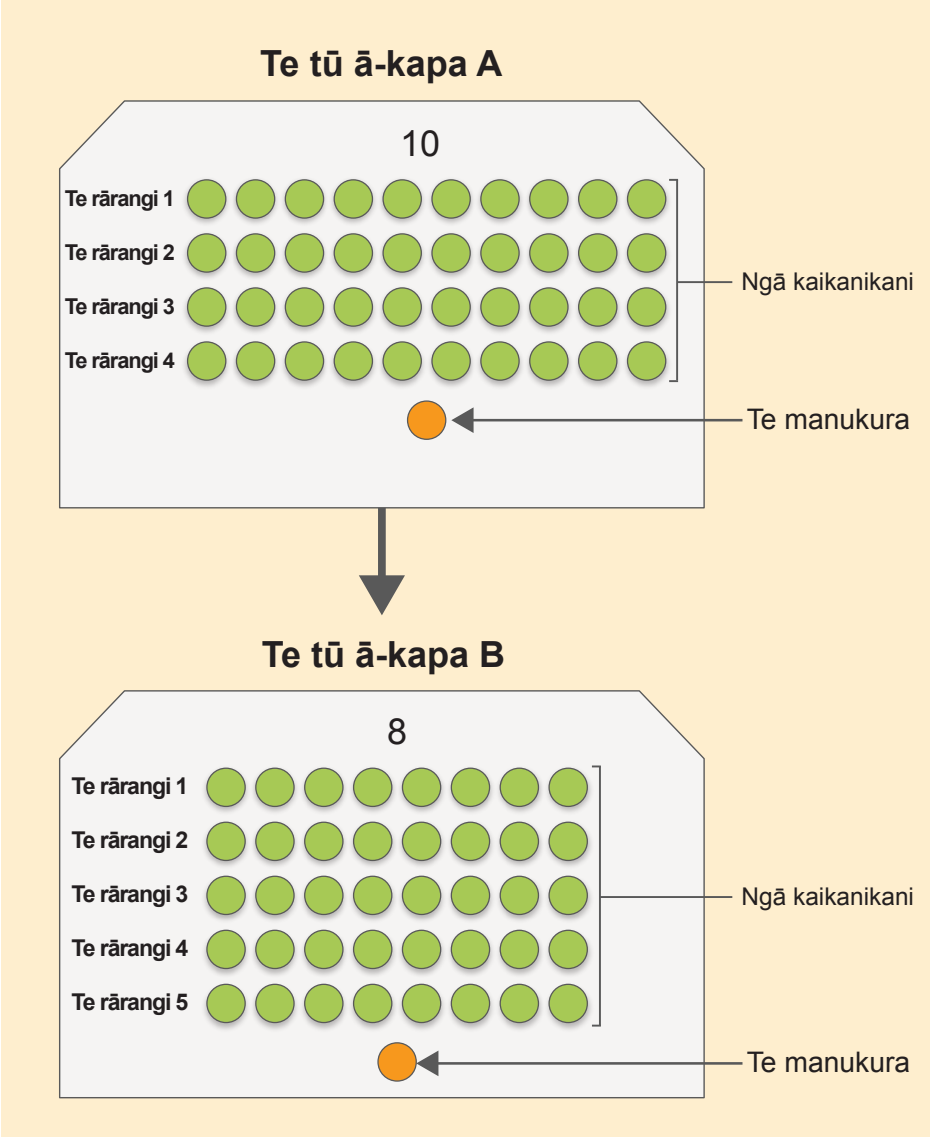
Each stage has a fixed time for performances and a **five-minute break between performances**.

Time	Tongan stage	Samoan stage
9:00 am	Redwood College (CA)	Manukau Harbour HS (SA)
9:15 am		Tāne HS (WA)
9:30 am	Southside HS (SA)	Kauri Park College (SA)
9:45 am	Tāne HS (WA)	Moana College (SA)
10:00 am		Maungakiekie College (CA)
10:15 am	Kōwhai College (SA)	Southside HS (SA)
10:30 am	**Food break**	Hauraki HS (WA)
10:45 am		**Food break**
11:00 am	East Shores College (O)	North Sun College (SA)

(e) How much longer, in minutes, is each performance on the Tongan stage compared to each performance on the Samoan stage?

_____ minutes

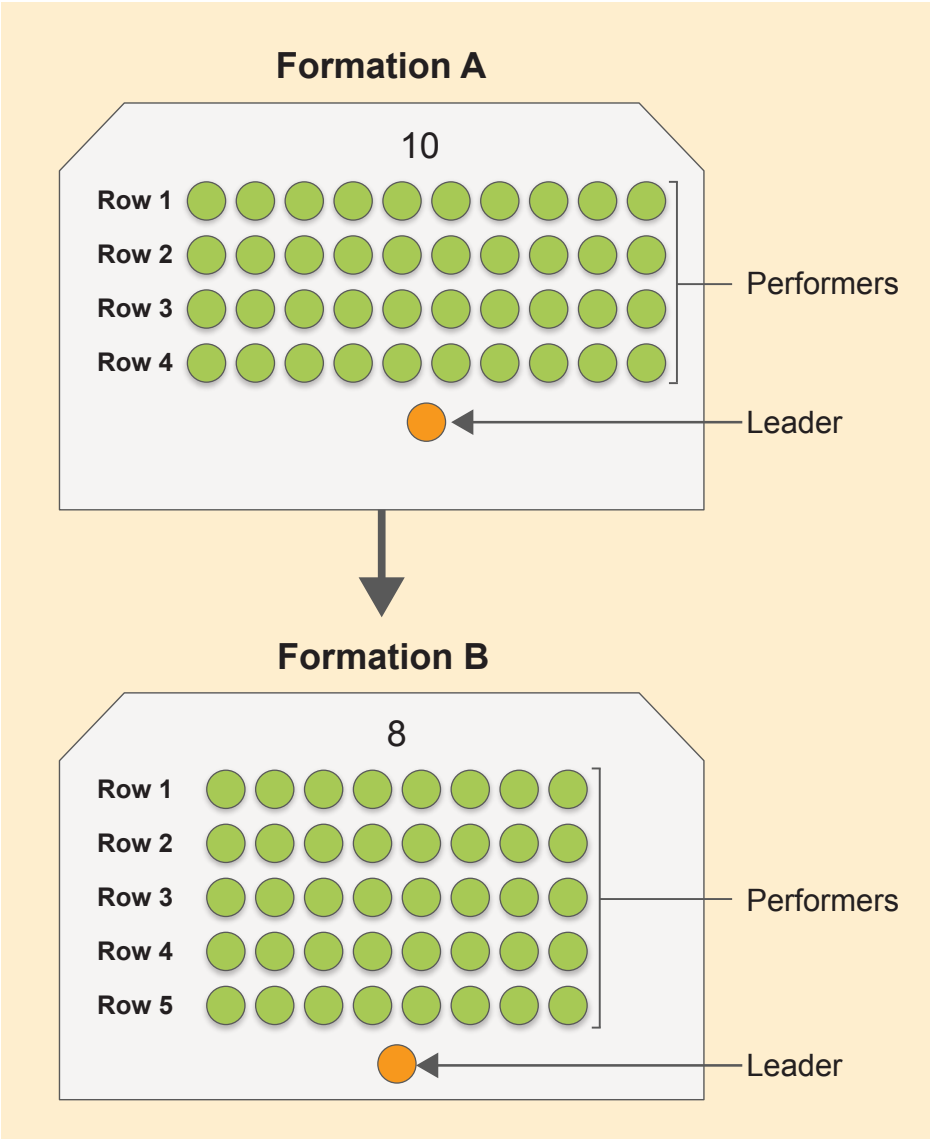
Ka tīmata tētahi kapa nō Niue i tā rātou whakaaturanga i Te tū ā-kapa A. E 40 ngā kaikanikani me tētahi manukura i te kapa. Ka taka te wā, ka neke rātou ki Te tū ā-kapa B.



(f) Ko te aha te **nama iti katoa** o ngā kaikanikani nō Te tū ā-kapa A me neke e hua ai Te tū ā-kapa B?

_____ ngā kaikanikani

A Niuean group starts off their performance in Formation A. There are 40 performers and a leader in the group. After a while, they move to Formation B.

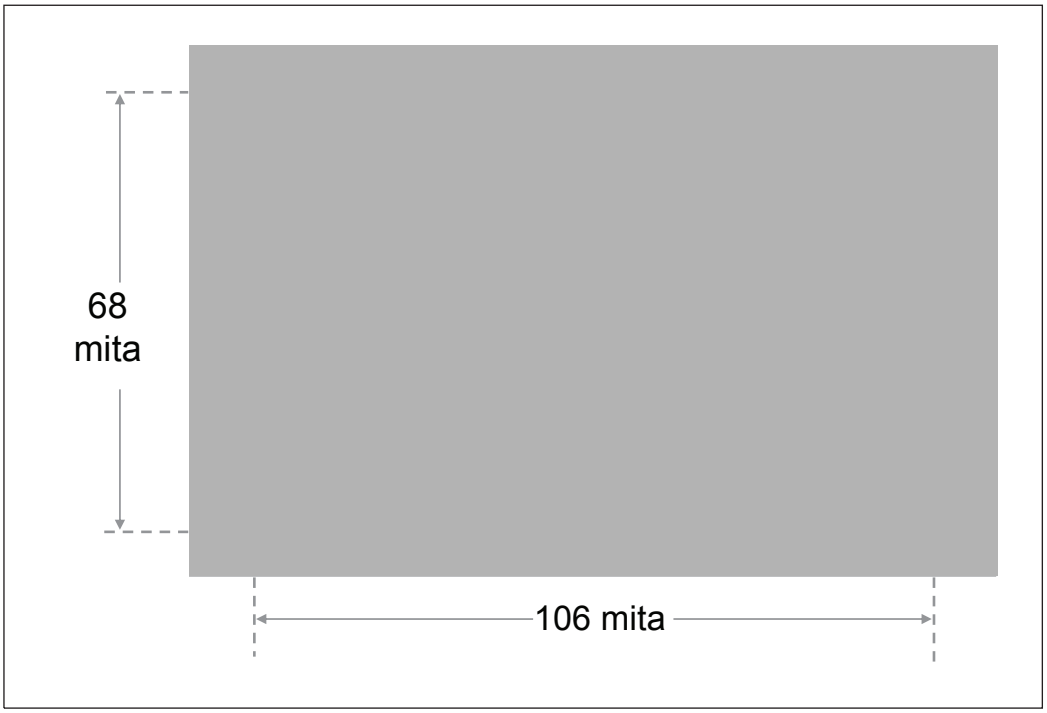


(f) What is the **smallest number** of performers from Formation A that need to move to make Formation B?

_____ performers

TE TŪMAHI TUARIMA: Te whutupōro takiwhitu

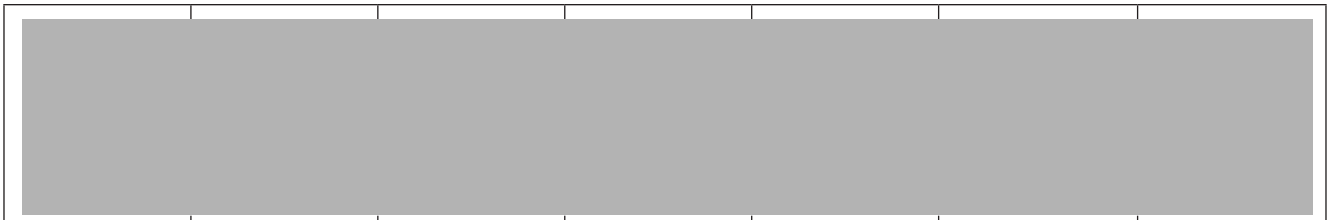
106 mita te roa, ā, e 68 mita te whānui o tēnei whīra whutupōro.



(a) Ko te aha te horahanga, ā-mita pūrua, o tēnei whīra whutupōro?

_____ mita pūrua (m^2)

Anei ngā kaitākaro katoa i tētahi kapa whutupōro takiwhitu. Kua tuhia te tāroaroa ā-mita o tēnā, o tēnā.



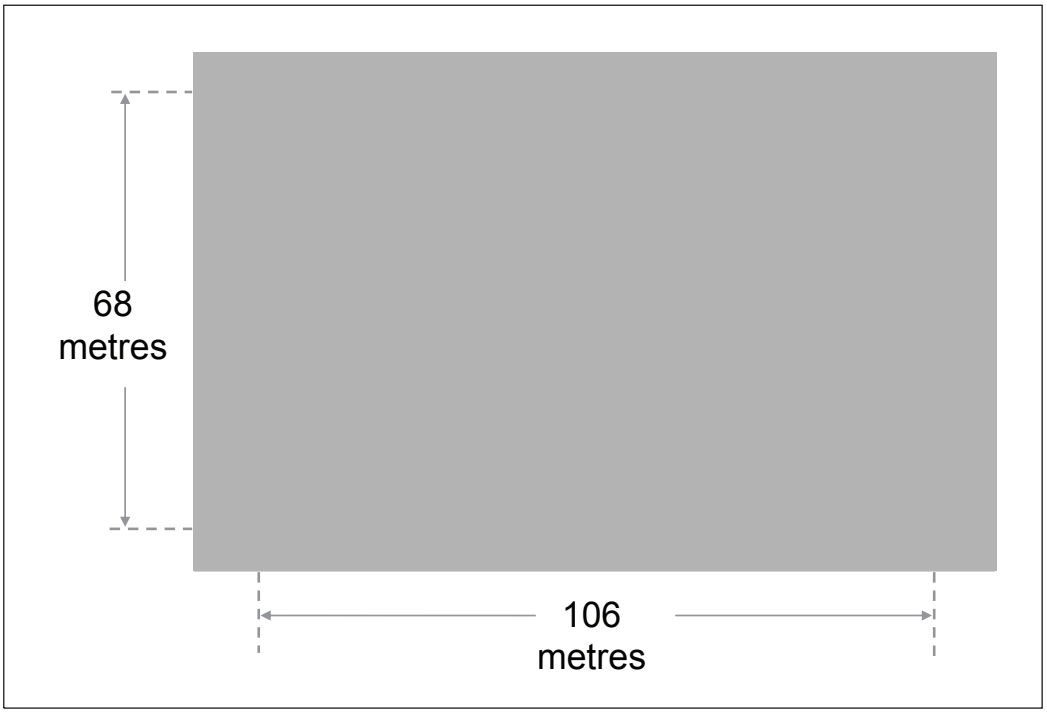
Nikau 2 m	**Josh** 1.77 m	**Simoni** 1.85 m	**Chris** 1.81 m	**Hōne** 1.8 m	**Caleb** 1.9 m	**Nepo** 1.72 m

(b) Ko ēhea kaitākaro e rua me whiti e tika ai te raupapa o te tāroaroatanga, mai i te mea **tāroaroa katoa ki te mea poto katoa**?

Ko _____ rāua ko _____

QUESTION FIVE: Rugby 7s

This rugby field is 106 metres long and 68 metres wide.



(a) What is the area of this rugby field in square metres?

_____ m^2

Here are all the players in a rugby 7s team. Their heights are given in metres.

Nikau	Josh	Simoni	Chris	Hōne	Caleb	Nepo
2 m	1.77 m	1.85 m	1.81 m	1.8 m	1.9 m	1.72 m

(b) Which two players need to swap places, so the heights are in order from **tallest to shortest**?

_____ and _____

I tākaro a Michaela i ngā meneti **14** katoa o tētahi kēmu whutupōro takiwhitu, ā, i **1,540 mita** te tapeke o tana omaoma.

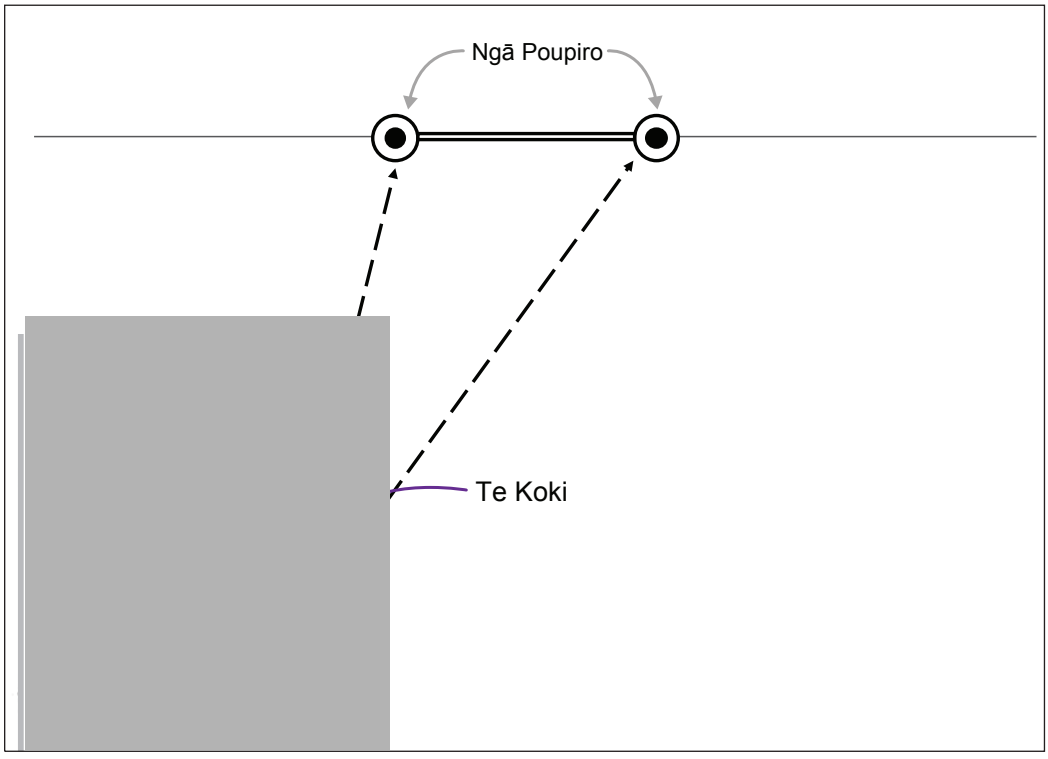
Ki tā Ani, ka neke atu i te 100 mita te tawhiti, ā-toharite nei, o te oma a Michaela i ia kotahi meneti i tākaro rā ia.

Ko Michaela e oma ana

(c) E tika ana rānei te kōrero a Ani?

Whakamahia ngā inenga kua tukuna hei whakamārama i tō whakautu.

I te whutupōro takiwhitu, ka whai whiwhinga āpiti ngā kaitākaro mā te whana taka i te pōro ki waenga i ngā pou.



Te kaitākaro i te whutupōro takiwhitu e whana taka ana i te pōro ki waenga poupiro

(d) Whakatau tatangia te koki me whai rā te kaitākaro e rere ai te pōro ki waenganui i ngā poupiro.

_____ °

Michaela played all **14 minutes** of a Rugby 7s game and ran a total of **1,540 metres**.

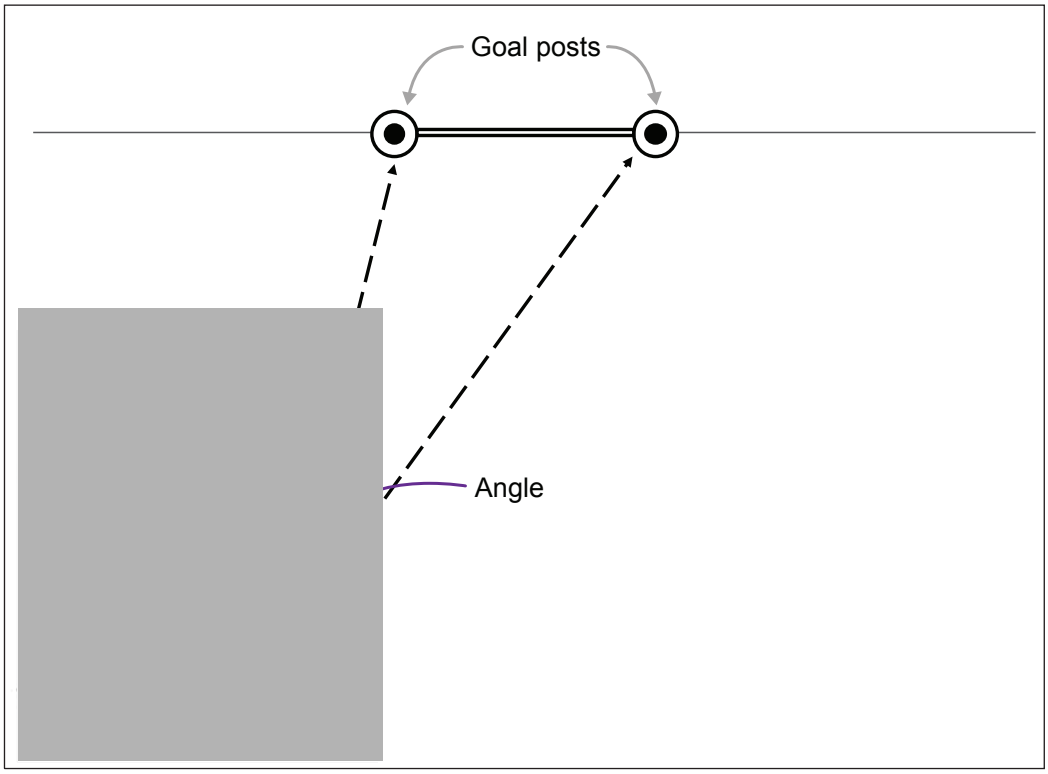
Ani says that, on average, Michaela ran over **100 metres** for every minute she played.

Michaela running

(c) Is Ani's claim reasonable?

Use the measurements provided to explain your answer.

In Rugby 7s, players can score extra points by drop-kicking a goal.



Rugby 7s player drop-kicking a goal between goal posts

(d) Estimate the angle this player must work with to get the ball between the goal posts.

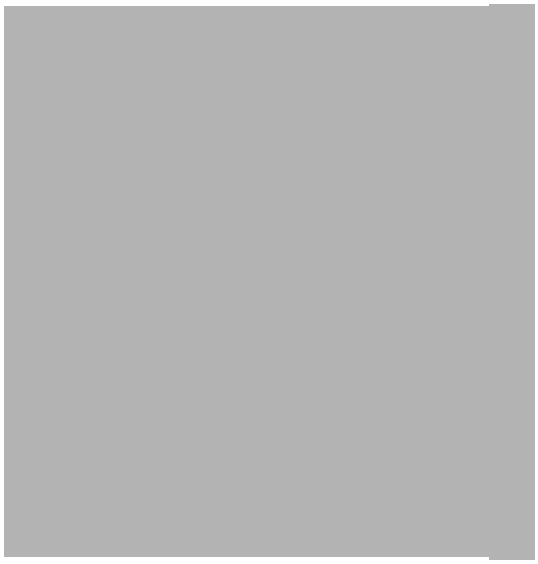
_____ °

Ina piua he uka, he rite tonu tā Sarah kōwhiri i te "upoko".

Engari i "whiore" katoa ngā piunga e toru o mua ake nei.

(e) Me "upoko", me "whiore" rānei tā Sarah kōwhiri i te piu uka tuawhā, e pai ana rānei ngā mea e rua?

Whakamāramahia tō whakautu mā te whakauru whakaaro e pā ana ki te tūponotanga.



Ko Sarah e piu uka ana

I tū te Ipu o te Ao tuatahi mō te whutupōro takiwhitu o ngā tāne i te tau 1993. E whakaatu ana te tūtohi nei i ngā tūnga o ngā tīma tāne i te Ipu o te Ao, mai i te tau 1993.

	Te Kapa	1993	1997	2001	2005	2009	2013	2018	2022
	Āketina	9th	13th	3rd	5th	**2nd**	11th	5th	5th
	Ahitereiria	**2nd**	5th	**2nd**	3rd	10th	5th	10th	4th
	Kānata	15th	21st	5th	18th	13th	9th	12th	13th
	Ingarangi	**1st**	5th	5th	3rd	5th	**2nd**	**2nd**	9th
	Whītī	3rd	**1st**	3rd	**1st**	5th	3rd	4th	**1st**
	Wīwī	15th	5th	21st	5th	13th	5th	8th	6th
	Hongipua	17th	10th	21st	21st	19th	21st	18th	19th
	Aotearoa	7th	3rd	**1st**	**2nd**	5th	**1st**	**1st**	**2nd**
	Āwherika ki te Tonga	5th	**2nd**	5th	5th	5th	5th	3rd	7th
	Amerika	17th	18th	13th	13th	13th	13th	6th	11th
	Wēra	11th	13th	11th		**1st**	5th	11th	15th

Ko te tīma tuatahi me te tīma tuarua ka tākaro i te whiringa toa. I puta rā te kōrero nei.

"Kua neke atu i te 60% te whai wāhi atu o Aotearoa ki te whiringa toa o ngā tāne i ngā Ipu o te Ao mō te whutupōro takiwhitu."

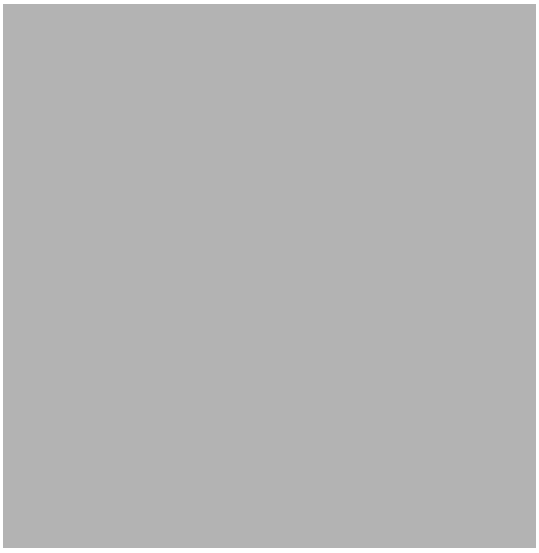
(f) E tika ana rānei tēnei kōrero? Whakamāramahia tō whakautu mā te whakamahi i ngā kōrero kei te tūtohi.

In a coin toss, Sarah usually picks "heads".

But the last three tosses have all come up "tails".

(e) Should Sarah choose "heads" or "tails" for the fourth toss, or is either choice acceptable?

Explain your answer using ideas about probability.



Sarah tossing a coin

The first Rugby 7s World Cup for men was in 1993. This table shows the placing of men's teams in the World Cup since 1993.

	Team	1993	1997	2001	2005	2009	2013	2018	2022
	Argentina	9th	13th	3rd	5th	**2nd**	11th	5th	5th
	Australia	**2nd**	5th	**2nd**	3rd	10th	5th	10th	4th
	Canada	15th	21st	5th	18th	13th	9th	12th	13th
	England	**1st**	5th	5th	3rd	5th	**2nd**	**2nd**	9th
	Fiji	3rd	**1st**	3rd	**1st**	5th	3rd	4th	**1st**
	France	15th	5th	21st	5th	13th	5th	8th	6th
	Hong Kong	17th	10th	21st	21st	19th	21st	18th	19th
	New Zealand	7th	3rd	**1st**	**2nd**	5th	**1st**	**1st**	**2nd**
	South Africa	5th	**2nd**	5th	5th	5th	5th	3rd	7th
	United States	17th	18th	13th	13th	13th	13th	6th	11th
	Wales	11th	13th	11th		**1st**	5th	11th	15th

The first and second teams played in the final. The following statement was made.

"New Zealand has been in the men's final for over 60% of the Rugby 7s World Cups."

(f) Is this statement true? Explain your answer using information from the table.

He whārangi tāpiri tēnei hei whakaoti i ō whakautu mēnā e hiahiatia ana.
Āta tuhia te tau o te pātai.

TAU PĀTAI

Extra space if required.
Write the question number(s) if applicable.

QUESTION NUMBER	

Ngā mihi

Kua whakahāngaihia ngā kōrero i ēnei puna e whai ake nei hei whakamahinga i tēnei aromatawai:

Tē Tūmahi Tuatahi

Te tuatara, https://www.kayak-newzealand.com/wp-content/uploads/2017/09/kayak-nature-tour-tuatara-reptile.jpg
Te tuatara, te wētā, https://www.ryanphotographic.com/tuatara.htm
Te tuatara kua pao, https://www.bbc.co.uk/programmes/articles/2hjZs1Yq7xK0WCgjMRck0Cb/filming-tiny-time-travell
Te kauwhata o ngā roanga o ngā tuatara, https://tiritirimatangi.org.nz/wp-content/uploads/2020/11/Tiritiri-10-year-Tuatara-Survey-20150217-Final-Version.pdf
Te mahere, https://www.google.com/maps/

Te Tūmahi Tuarua

Richie McCaw. Te 9 o Hepetema, 2007. Webb, Murray, 1947- :Digital caricatures. Ref: DCDL-0003904. Alexander Turnbull Library, Te Whanganui-a-Tara, Aotearoa, https://www.natlib.govt/records/22669945
Ngā hautau ā-upoko, https://mammothmemory.net/art/techniques/painting-and-drawing-techniques/proportions-of-a-face.html
Te tāraitanga, https://www.gibbsfarm.org.nz/images/thompson/thompson_05.jpg
Te uhi pakiwaituhi o Superman, https://news.artnet.com/market/top-10-comic-book-auction-records-2180493
Te Whare Manuhiri o Tīrau – Te kurī, https://places.nz/13825
Te Whare Manuhiri o Tīrau – Ngā hipi, https://www.nzherald.co.nz/travel/road-trip-must-dos-an-ironclad-pit-stop-in-tirau/QIGPDODM6LXUHZ5ZBRRJCCBWGU/
Te mahere – Te Whanganui-a-Tara ki Tīrau, https://www.aa.co.nz/travel/time-and-distance-calculator/

Te Tūmahi Tuatoru

He pātara wai nunui, https://springnz.co.nz/wp-content/uploads/2021/11/water-bottle-600x700-2.jpg
E toru ngā pātara wai, 1.5 rita te rōrahi, https://www.annaricco.com/products/mineral-water-1-5-liter
Te poaka, https://www.pinterest.nz/pin/pig-png-image--584482857867545266/
Te punua poaka, https://kids.nationalgeographic.com/animals/mammals/facts/pig
Ngā tohu ā-tūtohi mō te whakamahi wai, https://www.nzherald.co.nz/nz/watercare-to-increase-auckland-water-bills-by-7-per-cent-from-july/JUXW5IREDRG7BQ6VF77HAAQDOQ/
Te kauwhata ā-āhuarangi, https://viticulture.weebly.com/graphs--maps.html

Te Tūmahi Tuarima

Ngā ataata o ngā kaitākaro whutupōro, https://stock.adobe.com
Te kaitākaro whutupōro, https://www.cbc.ca/sports/olympics/summer/rugby/rugby-sevens-women-gold-1.6125318
Te whana taka, https://www.istockphoto.com/vector/a-woman-kicking-a-rugby-ball-gm1528107920-524973341
Te piu uka, https://t4.ftcdn.net/jpg/01/12/32/65/240_F_112326523_2obxVUfbRCvvrZO1FSP1lR10s0jMDB96.jpg
Ngā haki, https://stock.adobe.com

Acknowledgements

Material from the following sources has been adapted for use in this assessment:

Question One

Tuatara, https://www.kayak-newzealand.com/wp-content/uploads/2017/09/kayak-nature-tour-tuatara-reptile.jpg
Tuatara, wētā, https://www.ryanphotographic.com/tuatara.htm
Tuatara hatchling, https://www.bbc.co.uk/programmes/articles/2hjZs1Yq7xK0WCgjMRck0Cb/filming-tiny-time-travell
Tuatara Lengths graph, https://tiritirimatangi.org.nz/wp-content/uploads/2020/11/Tiritiri-10-year-Tuatara-Survey-20150217-Final-Version.pdf
Map, https://www.google.com/maps/

Question Two

Richie McCaw. 9 September, 2007. Webb, Murray, 1947- :Digital caricatures. Ref: DCDL-0003904. Alexander Turnbull Library, Wellington, New Zealand, https://www.natlib.govt/records/22669945
Head proportions, https://mammothmemory.net/art/techniques/painting-and-drawing-techniques/proportions-of-a-face.html
Sculpture, https://www.gibbsfarm.org.nz/images/thompson/thompson_05.jpg
Superman comic cover, https://news.artnet.com/market/top-10-comic-book-auction-records-2180493
Tīrau Visitor Centre – Dog, https://places.nz/13825
Tīrau Visitor Centre – Sheep, https://www.nzherald.co.nz/travel/road-trip-must-dos-an-ironclad-pit-stop-in-tirau/QIGPDODM6LXUHZ5ZBRRJCCBWGU/
Map – Wellington to Tīrau, https://www.aa.co.nz/travel/time-and-distance-calculator/

Question Three

Large water bottle, https://springnz.co.nz/wp-content/uploads/2021/11/water-bottle-600x700-2.jpg
Three 1-litre water bottles, https://www.annaricco.com/products/mineral-water-1-5-liter
Pig, https://www.pinterest.nz/pin/pig-png-image--584482857867545266/
Piglet, https://kids.nationalgeographic.com/animals/mammals/facts/pig
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Climate graph, https://viticulture.weebly.com/graphs--maps.html

Question Five

Rugby player sillouhettes, https://stock.adobe.com
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Drop-kick, https://www.istockphoto.com/vector/a-woman-kicking-a-rugby-ball-gm1528107920-524973341
Coin toss, https://t4.ftcdn.net/jpg/01/12/32/65/240_F_112326523_2obxVUfbRCvvrZO1FSP1lR10s0jMDB96.jpg
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English translation of the wording on the front cover

32406M TERM 2

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NZQA | Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Numeracy 2024

32406M Apply mathematics and statistics in a range of everyday situations

Credits: Ten

OUTCOMES	
1	Formulate mathematical and statistical approaches to solving problems in a range of everyday situations.
2	Use mathematics and statistics to meet the numeracy demands of a range of everyday situations.
3	Explain mathematical and statistical responses to situations.

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Enter your National Student Number (NSN) and School Code into the space above.

You should attempt ALL the questions in this booklet.

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