

MATHEMATICAL INQUIRY BOOKLETS

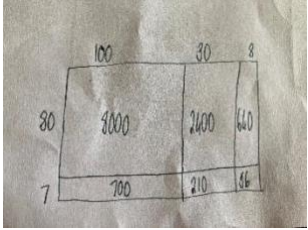
Tau me te Taurangi

Tūārere 3 (Tau 7-8)

Pukapuka Kaiako

<p>Rapanga 1</p>	<p>I te pāmu rōpere, e 78 nga tipu rōpere kai ia haupae. Ka taea e te pāmu rōpere te whakauru kia 212 ngā haupae i runga i to rātau whenua. E hia nga tipu rōpere kai reira katoa? Whakaaturia tō rongoā mā te whakamahi i ngā whakaaturanga rerekē e rua.</p> <p>I te pāmu rōpere, e 143 nga tipu rōpere kai ia haupae. Ka taea e te pāmu rōpere te whakauru kia 389 ngā haupae i runga i to rātau whenua. E hia nga tipu rōpere kai reira katoa? Whakaaturia tō rongoā mā te whakamahi i ngā whakaaturanga rerekē e rua.</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> ● I mua i te whakarewatanga o te tūmahi, whakamāramatia ki ngā ākongā ko te tauwehe ngā tau e whakarea ana kia kore ai he hua e toe ana. ● Hei tauira, ko te tauwehe o te 10 ko te 1, 10, 5, 2. ● Tauira mā te whakamahi i te rākau tauwehe hai tāhopu i te tauwehe. Tonoa ngā ākongā kia mahi tahi me tētahi hoa me te whakarārangi i ngā tau katoa mō ngā tau e whai ake nei: 36 12 49 81 25 ● Whakamōhiotia te kupu, te tauwehe tino pūnoa. ● Hei whakarewa i te tūmahi, pātai atu ki ngā ākongā kia tataua i ngā raruraru e whai ake nei: $18 \times 10 = 100 \times 25 = 40 \times 4000 =$ ● Pātai atu ki nga tauira kia kōrerorero i nga mea e kitea ana e rātau. Kia mōhio koe ki ngā ākongā e whakawhirinaki ana ki te 'tāpiri noa i tētahi 0' ina mahi ki te pūtake 10 whakarea. ● Tūhuratia ngā mea e puta ana ki ngā tau (e nui ake ana mā te pūtake (10)) kaua e whakawhirinaki ki tētahi ture. ● E tūmanako ana ngā ākongā kia whakamahi i ngā whārite me tētahi tauira rohe hei tāhopu i ngā rautaki rongoā. Mēnā kei te whakamahi ngā ākongā i te hātepe hātepe paerewa, tirohia te mātauranga ā-mahi me te mātauranga. Ka taea te tūhono i te hātepe papatono paerewa ki te āhuatanga ā-wehe
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākongā kua whakamahi i te ahuatanga tohatoha, ahuatanga herekore, Oritetanga me te utu. Whakamahia te reo pāngarau tika hei whakaahua i ēnei.</p> <p><i>Ahuatanga tohatoha</i> $78 \times 212 = (70 \times 200) + (70 \times 10) + (70 \times 2) + (8 \times 200) + (8 \times 10) + (8 \times 2)$</p> <p><i>Ahuatanga herekore</i> $78 \times 212 = (212 \times 10 \times 7) + (212 \times 8)$</p> <p><i>Oritetanga me te utu</i> $78 \times 212 = (80 \times 212) - (2 \times 212)$</p> <p>Pātai atu ki ngā ākongā kia tāhopu i ēnei hei whārite me te tauira e tohu ana i ēnei mā te tauira rohe. Ki te kore tētahi ākongā e whakatika i te tūmahi mā te whakamahi i te tohatoha ahuatanga, i te</p>

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	<p>Oritetanga rānei me te utu, kātahi ka whakamōhiotia he rautaki rongoā hei tauira whirinoa i whakamahia i mua e ētahi atu ākongā.</p>  <p>Hono: Pātai atu ki ngā ākongā kia whakaahua me pēhea te whakaoti i te whārite e whai ake nei mā te whakamahi i te tohatoha ahuatanga me Oritetanga me te utu: $164 \times 56 =$</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>Tērā ētahi āhuatanga tauhanga e whakaahua ana i te tāpiritanga me te whakarea hei mahi. Ko ēnei te āhuatanga kōaro, ā-waha, ā-waha, me ngā āhuatanga tuakiri. He pātahitanga kōaro tō te tāpiritanga me te tango me te whakarea me te wehenga. E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ka taea te whakamahi i ngā tauira me ngā pātahitanga, e whakaaturia ana, me te ahuwahānui i ngā huarahi maha.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Tau 7/8 Te Hanga o ngā Tau tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti ki ngā pū o te 10: ht; $10,000 = 10^4$.</p> <ul style="list-style-type: none"> • tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti me ngā tau-a-ira ki ngā pū o te 10: h.t., $0.01 = 1 \div 100 = 10^{-2}$. <p>Nga Pāheko</p> <ul style="list-style-type: none"> • whakaāwhiwhi me te whakatau tata ki te whakapae me te āta tiro ki te tikanga o ngā tātai • whakaāwhiwhi tauoti ki ngā taurea kua tautohua e pātata ana, ki ngā pū-10 rānei e pātata ana • whakaāwhiwhi me te whakatau tata ki te āta tiro ki te tikanga o ngā tātai
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Whakamārama me te whakatautika i te whakamahinga o te ahuatanga tohatoha i roto i te whakareatanga. Whakamārama me te whakatautika i te whakamahinga o te ahuatanga i koneikore i roto i</p>

	<p>te whakareatanga. Whakamārama me te whakatautika i te whakamahinga o Oritetanga me te utu i roto i te whakareatanga. Whakaatu whakaaro mā te whakamahi i ngā momo tuhipoka rerekē tae atu ki ngā whārite me tētahi taurira rohe.</p>
Nga tini mata o te reo pangarau	<p>Ahuatanga tohatoha, ahuatanga herekore, taurira horahanga, Oritetanga, utu, tauwehe, tau otinga.</p>
Rapanga Motuhake	<p>Whakaoti ēnei whārite:</p> <p> $194 \times 55 =$ $176 \times 42 =$ $131 \times 329 =$ $215 \times 197 =$ </p> <p>Whakamārama he aha ngā taurira i whakamahia e koe hei āwhina ki te whakatika i ngā whārite. Ka mahi tonu nga taurira i ngā wā katoa?</p>
Ma te kaiako	

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<p>Rapanga 2</p>	<p>E wātea ana te Tūranga Tūrewa te \$3818 te pūtea mo te tīma tākarō. E 53 nga tīma tākarō i tono atu. E hia te nui o ngā moni ka whiwhi ia tīma?</p> <p>He aha ngā tau (i runga i te mano) ka taea e koe te tīmata, ko te tikanga ka whiwhi anake ia tīma i te tāra, ā, kāore he hēneti?</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> ● I mua i te whakarewatanga o te tūmahi, ako i ngā ākongā kia tākarō i te kēmu āhuatanga mā te whakamahi i tētahi huinga kāri mati 0 – 9-mati. ● Ka pātai atu ngā ākongā ki ngā ākongā kia kōwhiri me te waiho kāri ki te taha matau o te kāri tīariari. ● Ko ngā ture ko ... i muri i te whakanohotanga o ngā kāri e rua, me ari te tau mati-rua e te 2; i muri i te whakanohotanga o ngā kāri e toru, me ari te tau mati-toru e te 3; i muri i te whakanohotanga o ngā kāri e whā, me whakawātea te tau mati-whā e te 4, me ērā atu mea. ● Me purei tonu kia kore rā anō tētahi kāri e waiho. Pātai atu ki ngā ākongā kia kōrerorero i ngā mea e kitea ana e rātou mō ngā rautaki e āwhina ana. Me mōhio ki ngā ākongā e whakamahi ana i te tāpiritanga, te tango rānei, me te tautoko i a rātou hei whakaaro maha. Tirohia ngā ākongā e whakamahi ana i te whakarua me te tautoko i a rātou kia mōhio ai ki tēnei hei whakarea i te rua. Pēhia ngā ākongā hei whakamahi i ngā tauwehes nui ake pēnei i te 5, 10 rānei.
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākongā i whakamahia ai e rātou te pātahitanga kōaro o te whakarea me te wehenga, te wāhanga rānei o te tohatoha/ahuatanga tohatoha (he ranunga rānei o ngā mea e rua) i roto i te rongoā. Mēnā kāore anō kia whakamahia he rautaki rongoā, whakamōhiohia tēnei hei rautaki rongoā kua whakamahia e ngā ākongā i mua.</p> <p><i>Pātahitanga kōaro</i></p> $3818 \div 53 = ?$ $53 \times ? = 3818$ $53 \times 10 = 530 \dots$

	<p><i>Wāhanga tau oti/Ahuatanga tohatoha</i> $3818 \div 53 = (1060 \div 53) + (1060 \div 53) + (1060 \div 53) + (530 \div 56) + (108 \div 53)$</p> <p>Hono: Pātai atu ki ngā ākonga kia whakaahua me pēhea tō whakaoti i te whārite e whai ake nei mā te whakamahi i te pātahitanga kōaro me te wāhanga o te tohatoha/ahuatanga tohatoha: $6626 \div 28 =$</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>Tērā ētahi āhuatanga tauhanga e whakaahua ana i te tāpiritanga me te whakarea hei mahi. Ko ēnei te āhuatanga kōaro, ā-waha, ā-waha, me ngā āhuatanga tuakiri. He pātahitanga kōaro tō te tāpiritanga me te tango me te whakarea me te wehenga. E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ka taea te whakamahi i ngā tauira me ngā pātahitanga, e whakaaturia ana, me te ahuwhānui i ngā huarahi maha.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Tau 7/8 Te Hanga o ngā Tau tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti ki ngā pū o te 10: ht; $10,000 = 10^4$.</p> <ul style="list-style-type: none"> • tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti me ngā tau-a-ira ki ngā pū o te 10: h.t., $0.01 = 1 \div 100 = 10^{-2}$. <p>Nga Pāheko</p> <ul style="list-style-type: none"> • whakaāwhiwhi me te whakatau tata ki te whakapae me te āta tiro ki te tikanga o ngā tātai • whakaāwhiwhi tauoti ki ngā taurea kua tautohua e pātata ana, ki ngā pū-10 rānei e pātata ana • whakaāwhiwhi me te whakatau tata ki te āta tiro ki te te tikanga o ngā tātai
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Whakamārama me te whakatautika i te whakamahinga o ngā āhuatanga o te wāhanga/ahuatanga tohatoha i roto i te wehenga. Whakamārama me te tohu i te pātahitanga kōaro o te whakarea me te wehenga. E whakaatu ana i te whakaaro mā te whakamahi i ngā momo tuhipoka rerekē.</p>

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<p>Nga tini mata o te reo pangarau</p>	<p>Ahuatanga tohatoha, inverse relationship, equivalence, tauwehe, product, quotient, divisor, dividend.</p>
<p>Rapanga Motuhake</p>	<p>Me tarai ēnei e whakaatu ana i ngā tau pū</p> $2^4 = 2 \times 2 \times 2 \times 2 = 16$ <p>4⁵</p> <p>8⁴</p> <p>5⁶</p> <p>7³</p> <p>6⁸</p> <p>Takina tō whakautu ki tētahi tātaitai. He aha ngā taurira ka kitea e koe?</p>
<p>Ma te kaiako</p>	

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<p>Rapanga 3</p>	<p>Na te wheketere reka o Pascal i puru kia 304 ngā pōkai reka ki ia ipu nui kia tukua hei pōkai. I ia tekau mā rima meneti ka kōmaka te mīhini i nga pōkai reka e 6806. E hia ngā ipu ka whakamahia i ia tekau mā rima meneti, a, he maha nga pōkai reka ka mahue?</p> <p>He aha hoki ngā tau kāore he pōkai reka e toe ana, engari tata tonu te maha o ngā ipu e whakamahia ana?</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> I mua i te whakarewatanga o te tūmahi, pātai atu ki ngā ākonga kia tākaro anō i te kēmu whakawehe (tirohia ngā tuhipoka kaiako i te Tūmahi 2 mō ngā ture), i tēnei wā me te whāinga ki te waihanga i te tau roa rawa e taea ana. Pātai atu ki ngā ākonga kia kōrerorero i ngā mea e kitea ana e rātou mō ngā rautaki e āwhina ana. Tirohia ngā ākonga e whakamahi ana i te tāpiritanga, te tango rānei, me te tautoko i a rātou ki te mahi anō hei whakaaro maha. Tirohia ngā ākonga e whakamahi ana i te āhuatanga kōaro, kei te whakamahi rānei i ngā tohatoha wāhanga/ahuatanga tohatoha i roto i ā rātou tatauranga.
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākonga i whakamahia ai e rātou te wāhanga o te mōrahi/ahuatanga tohatoha i roto i te rongoā.</p> <p>Hono:</p> <p>Pātai atu ki ngā ākonga kia whakaahua me pēhea tō whakaoti i te whārite e whai ake nei mā te whakamahi i ngā tohatoha wāhanga/ahuatanga tohatoha: $6206 \div 304 =$</p> <p>Whakamahia te tauira hei whakaatu i ngā tūhononga i waenga i te whakamahinga o ngā tāupenga wāhanga/ahuatanga tohatoha me te hātepe papatono whakawehenga paerewa.</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>Tērā ētahi āhuatanga tauhanga e whakaahua ana i te tāpiritanga me te whakarea hei mahi. Ko ēnei te āhuatanga kōaro, ā-waha, ā-waha, me ngā āhuatanga tuakiri. He pātahitanga kōaro tō te tāpiritanga me te tango me te whakarea me te wehenga. E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ka taea te whakamahi i ngā tauira me ngā pātahitanga, e whakaaturia ana, me te ahuwānui i ngā huarahi maha.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Tau 7/8 Te Hanga o ngā Tau tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti ki ngā pū o te 10: ht; $10,000 = 10^4$.</p>

	<ul style="list-style-type: none"> • tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti me ngā tau-a-ira ki ngā pū o te 10: h.t., $0.01 = 1 \div 100 = 10^{-2}$. <p>Nga Pāheko</p> <ul style="list-style-type: none"> • whakaāwhiwhi me te whakatau tata ki te whakapae me te āta tiro ki te tikanga o ngā tātai • whakaāwhiwhi tauoti ki ngā taurea kua tautohua e pātata ana, ki ngā pū-10 rānei e pātata ana • whakaāwhiwhi me te whakatau tata ki te āta tiro ki te te tikanga o ngā tātai • whakaāwhiwhi i ngā tau-ā-ira ki te hautekau, haurau, tauoti rānei e pātata ana • whakarea tauoti.
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Whakamārama me te whakatautika i te whakamahinga o ngā āhuatanga o te wāhanga/ahuatanga tohatoha i roto i te wehenga. Whakamārama me te tohu i te pātahitanga kōaro o te whakarea me te wehenga. E whakaatu ana i te whakaaro mā te whakamahi i ngā momo tuhipoka rerekē.</p>
<p>Nga tini mata o te reo pangarau</p>	<p>Ahuatanga tohatoha, inverse relationship, equivalence, tauwehe, product, quotient, divisor, dividend.</p>
<p>Rapanga Motuhake</p>	<p>Whakaoti ēnei whārite:</p> <p>$678 \div 25 =$ $8575 \div 405 =$ $6344 \div 28 =$ $9333 \div 322 =$</p>
<p>Ma te kaiako</p>	

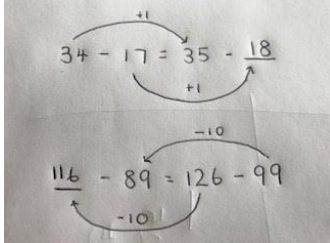
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<p>Rapanga 4</p>	<p>Ko nga tau pukahu ngā tau tuturu i te tapeke o tōna tauwehe.</p> <p>Mahi i tō rōpū ina he tau pukahu te tau 10</p> <p>He tau pukahu te tau 48?</p> <p>Mahi tahi kia kite rāno i ngā tau pukahu i waenga ngā tau 1-100</p> <p>Kōrerotia ngā tauira ka taea e koe te whakamahi hei āwhina i a koe ki te tūmahi</p> <p>Hangaia he awhe kōrero tāiringa e pā ana ki ngā tau maha, ā, ka kite mēnā ka taea e koe te whakamātau.</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> ● I mua i te whakarewatanga o te tūmahi, pātai atu ki ngā ākonga kia kitea te tauwehe tino pūnoa o: ● 16 me 12 ● 12 me 30 ● 60 me 96 ● 36 me 84 ● Homai he tapawhā 100 ki ngā ākonga hei tautoko i a rātou. Āwhina i ngā ākonga kia mōhio ki ngā tauira ka kitea e rātou me te whakaahua me te whakamātau i ēnei. He tau iti iho ngā tau tūturu i te tapeke o ōna tauwehe (me te kore). Ko ngā tau tūturu he tau nui ake i te tau o ōna tauwehe (me te kore). Ko ngā tau tino tika he tau e ōrite ana ki te tapeke o o rātau tauwehe (me te kore). Mō te tūmahi takitahi, homai he tapawhā 100 ki ngā ākonga hei tāhopu i ngā tauira.
<p>Wa toha me te hononga</p>	<p>Tīpakohia me te raupapa rongoā ākonga e tohu ana i ngā tauira me te tono i ngā ākonga kia whakamārama me te whakatautika i ēnei.</p> <p>Ko nga tau nui katoa ahakoa he taurua E ono nga tauwehe o nga tau nui</p> <p>Hono: Whakamahia he papa me te kara 100 i roto i ngā tau nui katoa. Pātai atu ki ngā ākonga kia mahi mō ētahi atu tauira ka kitea e rātau. He tau nui pea te tau matua?</p>
<p>Nga Whakaaro matua o te Ao Pāngarau</p>	<p>Ka taea te whakaahua i ngā pātahitanga me ngā ahuwānuitanga i mahia mō ngā āhuetanga pāngarau whai tau, ahanoa rānei e tārua ana i ngā huarahi mōhioitia.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Tau 7/8 Te Hanga o ngā Tau tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti ki ngā pū o te 10: ht; $10,000 = 10^4$.</p>

	<ul style="list-style-type: none"> • tautohu, te pānui, te tuhi, te whakatairite me te raupapa tauoti me ngā tau-a-ira ki ngā pū o te 10: h.t., $0.01 = 1 \div 100 = 10^{-2}$. • kimi i te tauwehe pātahi nui rawa o ngā tau e rua ki te 100 • kimi i te taurea e pātahi iti rawa o ngā tau ki te 10 • whakamahi taupū hei tuhi whakareatanga tāruarua me te tautohu pūtakerua ki te 100. • whakamahi i ngā tauwehe toitū ki te whakaahua i tētahi tau kia kite i te tauwehe pātahi nui rawa o ngā tau e rua • tautohu tau tōitū, ngā tau hiatō ki te 100, me ngā pūtakerua ki 125. <p>Nga Pāheko</p> <ul style="list-style-type: none"> • whakaāwhiwhi me te whakatau tata ki te whakapae me te āta tiro ki te tikanga o ngā tātai • whakaāwhiwhi tauoti ki ngā taurea kua tautohua e pātata ana, ki ngā pū-10 rānei e pātata ana • whakaāwhiwhi me te whakatau tata ki te āta tiro ki te tikanga o ngā tātai • whakaāwhiwhi i ngā tau-ā-ira ki te hautekau, haurau, tauoti rānei e pātata ana • whakarea tauoti. <p>Taurangi Te Whakawhānui āhuatanga tau Tau 7 whakaputa wawe i ngā meka matua ki te 10×10 me ngā ture whakawehe mō te 2, 3, 5, 9, 10</p>
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Tāutua ko te tauwehe ngā tau e whakarea ana kia kore ai he hua. Tatau tauwehe mō ngā tau rerekē. Whakamārama me te whakatautika i ngā tauira me ngā pātahitanga i roto i ngā tauwehe me ngā tau maha.</p>
<p>Nga tini mata o te reo pangarau</p>	<p>Tauwehe, tau whakarea, tau pukahu, tau otinga, tau.</p>
<p>Rapanga Motuhake</p>	<p>I ngā wā katoa e kimi ana ngā tāngata puta noa i te hītori i ngā tauira i roto i ngā tau.</p> <p>I kitea e ngā kaimahi pāngarau e ōrite ana ētahi tau ki te tapeke o o rātau tauwehe katoa (engari kāore i roto i te tau anō). E kiia ana ēnei he tau tino tika.</p> <p>Ko tētahi atu tauira ko ngā tau matua ka taea anake te whakawehe e ia anō me te 1 me te kore toenga.</p> <p>I te tapawhā 100 whakamahia ngā kara rerekē hei tohu i ēnei e whai ake nei: tau tino tika; tau matua, ngā tau pukahu. He aha ngā tauira e puta mai?</p>
<p>Ma te kaiako</p>	

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Rapanga 5	<p>Ka taea e koe te mahi tahi i tō rōpū ki te mahi mēnā he pono, he hē rānei ēnei rerenga tau? Me mātua whakarite ka hangaia e koe tētahi whakamāramatanga ka taea e te katoa te tiritiri..</p> <p> $547 + 368 = 549 + 366$ $487 + 8 + 7 = 487 + 16$ $63 - 47 = 61 - 45$ $387 = 385$ $7 \times 9 = (5 \times 9) + 9$ $8 \times 6 = (10 \times 6) - 6 - 6$ $20 + 21 + 22 + 23 + 24 = 25 + 26 + 27 + 28$ </p>
Hei Awhina i te kaiako	<p>Tirohia kia mārama ngā ākongā ki ngā tikanga pono, hē hoki. Ko te whakamōhioanga o te kore ōrite (\neq) mō ngā rerenga tau e whakaaro ana rātau he hē. I te tuatahi ka taea e ngā ākongā te whakamahi i te tohu ōrite hei kaiwhakahaere, hei tohu rānei hei tuhi i te whakautu panuku. Ka taea ēnei mōhioanga te whakamahi hei whakatū i ngā ākongā hei whakauru ki te tautohe pāngarau. Ka taea hoki e ngā ākongā te whakararuraru i ia taha ki te mahi mēnā e ōrite ana rātau. Me mōhio ki ngā ākongā e whakamahi ana i ngā pātahitanga puta noa i te tohu ōrite kia kite ai mēnā he toenga. Miramiratia ngā urupare pānga a ngā ākongā (hei tauira, e mōhio ana ki ngā pātahitanga $+2, -2$). Pēhia hei whakamahi i ngā pere me ngā tuhipoka hei miramira i ngā pātahitanga.</p> 

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<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākonga e whakamahi ana i te whakaaro pānga. $63 - 47 = 61 - 45$ he pono nā te mea e rua neke atu i te 61 me te 47 neke atu i te 45.</p> <p>Hono:</p> <p>Ko te tau e haere ana i te __, te tau ōrite i ēnei whārite e rua?</p> $4 \times _ + 12 = 24$ $4 \times _ + 12 - 6 = 24 - 6$ <p>Whakamārama he aha ai, he aha i kore ai rānei. Kāore e taea e koe tēnei pātahitanga te mahi?</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8</p> <p>Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro):</p> <p>h.t., $-6 + 8 = -6 + 6 + 2$.</p> <p>Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kianga tae rā anō ki ngā tau tōraro.</p>
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Whakamārama me te whakatautika i ngā pātahitanga i waenga i ngā tau i roto i te whārite. Tuhia ngā tauākī o te ōritetanga ki ngā kupu me te whakamahi i te tuhipoka. Whakaoti i ngā raruraru ōrite me te whakamārama me te whakatautika i ngā rongoā.</p>
<p>Nga tini mata o te reo pangarau</p>	<p>Tohu orite</p>
<p>Rapanga Motuhake</p>	<p>Mahi ko ēhea rerenga tau he pono, he hē rānei, he whakamārama hoki i tō whakaaro.</p> $566 + 388 = 564 + 386$ $73 - 38 = 71 - 36$ $288 + 16 = 288 + 8 + 9$ $53 - 27 = 63 - 17$

	$385 = 385$ $6 \times 12 = (6 \times 10) + 6 + 6$ $9 \times 7 = (10 \times 7) - 7 - 7$ $8 + 9 + 10 = 11 + 12 + 13 + 14$
Ma te kaiako	

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<p>Rapanga 6</p>	<p>He aha ngā uara ka taea mō $b + b = 14$?</p> <p>He aha ngā uara ka taea mō te $y + g = 12$?</p> <p>Ināianei, mahi tahi i tō rōpū hei whakatika i ēnei whārite me te whakatautika i tō rongoā. Me mātua whakarite, ka taea e te katoa te whakamārama me te whakatautika i ō urupare. $y - 12 = 8$</p> <p>$15 - c + 4 - c = 9$</p> <p>$y \times 4 + y - y + 3 = 27$</p> <p>$8g + 7 = 39$</p> <p>$12b - 23 = 49$</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> ● I mua i tō whakarewa i te raruraru, tonoa ngā ākonga kia mahi tahi me tētahi hoa me te tuhi kīanga kia ōrite ki ēnei āhuatanga: ● He mea whakapiripiri tāku, ka hoatu ētahi ● Kei au ētahi mea whakapiripiri, ka hōmai kia 4 anō. Kei au ētahi mea whakapiripiri, ka tiki e 3 anō, ā, ka tiki e 4 anō. ● Kei au ētahi mea whakapiripiri, ka tiki e 6 anō, ā, ka tātorutia te katoa o ngā mea whakapiripiri. ● Whakamōhio ia rongoā ākonga me te tiri e whakamahi ana i tētahi tāupe hei tauira i te whārite. Ki te hoatu tau ngā ākonga katoa, kātahi ka raruraru i tēnei mā te pātai, e mōhio ana tātau e hia? Ki te kore mātou e mōhio, ka taea e tātau te whakamahi reta hei tohu i tētahi tau. ● Whakamōhio atu ki ngā ākonga $2n = 2 \times n$ hei tuhipoka. Whakarewahia te wāhanga tuatahi o te raruraru kātahi ka whakahoki mai i ngā ākonga ki te tiri whakaaro. ● Miramira ka ōrite te tau o te b kia kotahi anake te rongoā. ● Whakaaturia kāore e taea e te y me te g te ōrite ki te 6. ● Miramira he maha ngā rongoā o te $y + g$ tae atu ki te $y = 6$ g = 6 ● Ngā uara o ngā tāupe: Ka taea e ngā Tāupe te whai uara - ka whakaritea he reta ki tēnei uara. He ōrite te uara o te tāupe ōrite ki tētahi whārite. Ka taea ngā taupe rerekē kia ōrite te uara. ● Kōrero me te hōpara ki ngā ākonga ka noho whārite tonu ngā whārite i a koe e whakamahi ana i ngā āhuatanga o te ōritetanga. Me hoatu tētahi mahi e whakahaeretia ana i tētahi taha o te tohu ōrite ki tētahi atu. Hoatu te kōaro o tētahi mahi

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	<p>hei whakakore, hei tango rānei. Ko te whāinga ki te whakaoti i ngā whārite rārangi, ko te wehe i te tāupe tē mōhiohia mā te hoatu i te kōaro hei tango i ētahi atu tāupe e mōhiohia ana.</p>
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākongā e whakamahi ana i te whakaaro pānga.</p> <p>Hono:</p> <p>Te whakautu o $5k + 23 = 68$ is $k = 9$ He aha te whakautu o $5k + 23 + 14 = 68 + 14$? He aha tāu i kite ai? ka tohua te k i te: Ina $a + b = c$ then $a + b - d = c - d$ or Ina $a + b = c$ then $a + b + d = c + d$</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8 Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro): h.t., $-6 + 8 = -6 + 6 + 2$. Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kīanga tae rā anō ki ngā tau tōraro.</p> <p>Whārite me te Hononga</p> <ul style="list-style-type: none"> whakaahua me te whakamahi āhuatanga kōaro, herekore, tohatoha, h.t., $O \times _ = _ \times O$. <p>hakarūnā rautaki taurangi e whai wāhi ana ki ngā tapeke, ngā otinga, ngā rerekētanga me te whakawhānui hoki i ngā kīanga ki te āhuatanga tohatoha: h.t., $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$.</p> <ul style="list-style-type: none"> kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi: h.t., tātaihia $w + 12$ mehemea $w = 4$.

	<ul style="list-style-type: none"> kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi.
Whaingā Ako Kei te ako te mokopuna ki te :	Whakamārama me te whakatautika i ngā pātahitanga i waenga i ngā tau i roto i te whārite. Tuhia ngā tauākī o te ōritetanga ki ngā kupu me te whakamahi i te tuhipoka. Whakaoti i ngā raruraru ōrite me te whakamārama me te whakatautika i ngā rongoā.
Nga tini mata o te reo pangarau	Tohu ōrite, oritetanga
Rapanga Motuhake	Whakaoti ēnei whārite: $7a = 49$ $y - 14 = 8$ $19 = p - 4$ $32 \div m = 8$ $5f + 6 = 31$ $11r - 18 = 48$ $3q + 7 = 25$ $9d - 5 = 76$
Ma te kaiako	

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<p>Rapanga 7</p>	<p>Mahi tahi i tō rōpū hei whakatika i ēnei whārite me te whakatautika i tō rongoā. Me mātua whakarite ka taea e te katoa te whakamārama me te whakatautika i ō urupare.,</p> $8m = 3m + 25$ $4 \times h + 7 \times h = 40 + 26$ $24 = 4v - 16 + v$ $6n + 5 = 29 - n + 3n$ $4j - 6 = 2j + 4$
<p>Hei Awhina i te kaiako</p>	<p>I mua i tō whakarewatanga i te tūmahi, tirohia anōtia ngā tuhipoka i mahia i roto i te akoranga tōmua i whakaū ai ka noho whārite tonu ngā whārite i a koe e mahi ana i te mea ōrite ki ngā taha e rua.</p> <p>Pātai atu ki ngā ākongā:</p> <p>I kī a Malia "t + 3 he iti iho i te 5 + t" I ētahi wā, i ētahi wā, kāore rānei i te pono?</p> <p>Ka noho whārite tonu ngā kōrero me te hōpara ki ngā ākongā ka noho whārite tonu ngā whārite ki te whakamahi koe i ngā āhuatanga o te ōritetanga. Me hoatu tētahi mahi e whakahaeretia ana i tētahi taha o te tohu ōrite ki tētahi atu. Hoatu te kōaro o tētahi mahi hei whakakore, hei tango rānei. Ko te whāinga ki te whakaoti i ngā whārite rārangi, ko te wehe i te tāupe tē mōhiotia mā te hoatu i te kōaro hei tango i ētahi atu tāupe e mōhiotia ana.</p>
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākongā e whakamahi ana i ngā pātahitanga kōaro me ngā āhuatanga o te ōritetanga.</p> <p>Hono:</p> <p>Whakamaharatia ngā ākongā o BEDMAS me te tono i ngā ākongā kia whakaahua i ngā hipanga ka taea e koe te whakangāwari i ēnei e whai ake nei: $5(b + 4) + 3 = 10 + 3(h + 3) =$</p> <p>Kātahi ka pātai atu me pēhea te whakaoti: $2(h + 2) + 10 = 24$</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ko te rongoā ki tētahi whārite he uara o ngā mea tē mōhiotia, tē mōhiotia rānei e pono ai te whārite. Ka taea te</p>

	whakamahi i ngā āhuatanga o te ōritetanga me te āhuatanga kōaro hei hanga i ngā whārite ōrite me te kimi rongoā.
Nga Tini mata o te Marautanga	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8 Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro): h.t., $-6 + 8 = -6 + 6 + 2$. Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kīanga tae rā anō ki ngā tau tōraro.</p> <p>Whārite me te Hononga</p> <ul style="list-style-type: none"> whakaahua me te whakamahi āhuatanga kōaro, herekore, tohatoha, h.t., $O \times _ = _ \times O$. <p>hakarūnā rautaki taurangi e whai wāhi ana ki ngā tapeke, ngā otinga, ngā rerekētanga me te whakawhānui hoki i ngā kīanga ki te āhuatanga tohatoha: h.t., $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$.</p> <ul style="list-style-type: none"> kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi: h.t., tātaihia $w + 12$ mehemea $w = 4$.
Whaingā Ako Kei te ako te mokopuna ki te :	Whakamārama me te whakatautika me pēhea te mōhio ki te uara o tētahi tāupe ka kitea te uara o tērā atu tāupe mā te whakaoti i te whārite. Whakamahia ngā pātahitanga kōaro me te mōhioatanga ki ngā āhuatanga o te ōritetanga hei whakatika i ngā whārite.
Nga tini mata o te reo pangarau	Kāore i te mōhioatanga, te tāupe, ngā pātahitanga kōaro, te ōritetanga, te whārite, ngā uara.
Rapanga Motuhake	Whakaoti ēnei: $13 + r = 30$ $k - 8 = 14$ $7d = 42$ $6b + 5 = 23$ $4k - 3 = 17$ $42 + 5t = 8t$ $7d + 4 = 2d + 29$

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	$7k - 13 = 2y + 12$
Ma te kaiako	

Rapanga 8	I ō rōpū tirohia ngā whārite me te whakawhanake i tētahi pūrākau e ōrite ana ki te whārite. Me mātua whakarite ka taea e ngā tāngata katoa o tō rōpū te whakamārama me te whakatautika he aha te take e
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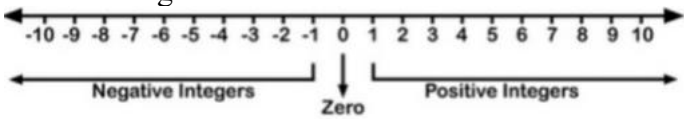
	<p>ōrite ai te pūrākau ki te whārite. Me haere ki te whakaoti i ngā raruraru pūrākau i waihangatia e koe::</p> $-20 + 5 = \underline{\quad}$ $\underline{\quad} - -3 = 6$ $-7 + \underline{\quad} = -11$
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> • I mua i tō whakarewa i te tūmahi, pātai atu ki ngā ākonga kia whakaputa i ngā mea katoa e mōhio ana rātou mō ngā tau tōraro me te tāhopu i ō rātou whakaaro. • Ko ngā tau tōpū he toronga o ngā tau katoa, arā ko ngā tau tōruna, tōraro hoki e hāngai ana (...-2, -1, 0, 1, 2,...). • Ngā horopaki pūrākau pea: te teitei ake i te taumata moana, te piro i roto i ngā hākinakina/kēmu e.g. korowha, ngā mokowā tōruna/tōruna e.g. e kari rua ana, ngā pāmahana i raro iho i te kore
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākonga e whakamahi ana i ngā pātahitanga kōaro me ngā āhuatanga o te ōritetanga hei wehe me te whakaoti mō te hunga tē mōhioia</p> <p>Hono:</p> <p>Pātai atu ki ngā ākonga kia whakataurite i ngā pūrākau me te pānui i ngā ritenga me ngā rerekētanga.</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ko te rongoā ki tētahi whārite he uara o ngā mea tē mōhioia, tē mōhioia rānei e pono ai te whārite. Ka taea te whakamahi i ngā āhuatanga o te ōritetanga me te āhuatanga kōaro hei hanga i ngā whārite ōrite me te kimi rongoā.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8</p> <p>Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro): h.t., $-6 + 8 = -6 + 6 + 2$.</p> <p>Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kīanga tae rā anō ki ngā tau tōraro.</p> <p>Whārite me te Hononga</p> <ul style="list-style-type: none"> • whakaahua me te whakamahi āhuatanga kōaro, herekore, tohatoha, h.t., $0 \times \underline{\quad} = \underline{\quad} \times 0$.

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	<p>hakarūnā rautaki taurangi e whai wāhi ana ki ngā tapeke, ngā otinga, ngā rerekētanga me te whakawhānui hoki i ngā kīanga ki te āhuetanga tohatoha: h.t., $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$.</p> <ul style="list-style-type: none"> • kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi: h.t., tātaihia $w + 12$ mehemea $w = 4$.
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>E whakaatu ana i roto i tētahi pūrākau pāngarau he āhuetanga i roto i tētahi raruraru e whai tau tōraro ana, tōruna hoki. Whakamārama me te whakatautika he pēhea te toronga o ngā tau katoa o te tau tōpū, ā, kei roto hoki ko ngā tau tōruna, tōraro hoki.</p>
<p>Nga tini mata o te reo pangarau</p>	<p>Ngā uara kāore i te mōhiotia, te tāupe, ngā pātahitanga kōaro, te ōritetanga, te whārite, ngā uara.</p>
<p>Rapanga Motuhake</p>	<p>Tirohia ngā whārite me te whakawhanake i tētahi, ētahi rānei o ngā pūrākau e ōrite ana ki ia whārite.</p> <p>$-3 + -1 =$ $-15 - \underline{\quad} = 11$ $\underline{\quad} + 24 = 0$ $-15 - 18 =$</p>
<p>Ma te kaiako</p>	

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<p>Rapanga 9</p>	<p>I ō rōpū e tohu ana i tō whakaaro i runga i tētahi raina tau hei whakaatu me pēhea tō whakaoti i ēnei whar:</p> $7 + 2 =$ $-19 - -11 =$ $4 - -9 =$ $-12 + 8 =$ $6 - 15 =$ $-12 + -4 =$
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> I mua i tō whakarewa i te tūmahi, pātai atu ki ngā ākonga kia tiritiri ina kite rātou i ngā tau tōraro i roto i te oranga? Tauiratia tētahi raina tau wātea i runga i te papa me te tono i ngā ākonga kia kōrerorero ki hea haere ai ngā tau mēnā e tata ana koe mai i te 5 tōraro ki te 5 tōrunga. Whakamahia te raina tau hei tohu i te tauwāhi/pānga o ngā tau tōraro/tōrunga ki a rāua anō  <p>Miramiratia ko ngā tau tōpū e rua e ōrite ana te tawhiti mai i te taketake i roto i ngā aronga hangai, ka karangatia ki tauaro, ā, ina tāpirihia te whakakore i a rāua anō 0. Miramiratia te rerekētanga i waenga i te whakamahinga o - hei tohu mahi (minus) me te tohu aronga (aronga/rahi o te nekeneke) mō ngā tau tōraro. Whakaarohia mā te whakamahi i ngā rauemi ōkiko hei tohu i ngā tau tōrunga, tōraro hoki e.g. ngā kaikaute pango (tōrunga) me ngā kaikaute whero (tōrunga).</p>
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā rautaki rongoā ākonga e tautoko ana i tētahi matapakinga o te pātahitanga i waenganui i te tāpiritanga me te tango ina mahi tahi me ngā tau tōpū.</p> <p>Hono:</p> <p>He aha ngā tauira i kitea e koe i a koe e tāpiri ana, e whakauru ana i ngā tau tōrunga, tōraro hoki?</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>Ka taea te whakaatu i ngā āhuatanga pāngarau hei whārite, arā ko ngā tau tōpū tōrunga, tōraro hoki. He tōraro te rahinga tūturu e iti iho ana i te kore. He tauaro nga tau tōrunga me te tōraro.</p>
<p>Nga Tini mata o te Marautanga</p>	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8</p>

	<p>Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro): h.t., $-6 + 8 = -6 + 6 + 2$. Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kīanga tae rā anō ki ngā tau tōraro.</p> <p>Whārite me te Hononga</p> <ul style="list-style-type: none"> whakaahua me te whakamahi āhuatanga kōaro, herekore, tohatoha, h.t., $O \times _ = _ \times O$. <p>hakarūnā rautaki taurangi e whai wāhi ana ki ngā tapeke, ngā otinga, ngā rerekētanga me te whakawhānui hoki i ngā kīanga ki te āhuatanga tohatoha: h.t., $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$.</p> <ul style="list-style-type: none"> kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi: h.t., tātaihia $w + 12$ mehemea $w = 4$.
<p>Whaingā Ako Kei te ako te mokopuna ki te :</p>	<p>Whakaotia te tāpiritanga māmā me te tango whārite mā te whakamahi i ngā tau tōpū. Whakamahia tētahi raina tau hei tohu i te pātahitanga i waenga i ngā tau tōpū tōruna me te tōraro i roto i ngā whārite. Whakamārama me te whakatautika i te tūnga o te kore, ehara i te mea tōruna, tōraro rānei. Whakamārama me te whakatautika i te whakamahinga o - hei tohu mahi (minus) me te tohu aronga (aronga/nui o te nekeneke) mō ngā tau tōraro</p>
<p>Nga tini mata o te reo pangarau</p>	<p>Ngā tau tōpū, tau tōraro, tau tōruna.</p>
<p>Motuhake Rapangas</p>	<p>Solve these equations (use an empty line if it helps):</p> <p>$17 + -9 =$</p> <p>$- 16 - -24 =$</p> <p>$-36 + -16 =$</p> <p>$21 - -43 =$</p> <p>$-265 - 78 =$</p> <p>$-273 + -168 =$</p> <p>$-144 - -223 =$</p>
<p>Ma te kaiako</p>	

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Rapanga 10	<p>Kai te whakaoti a Tiare i tētahi raruraru whakawehenga i hoatu e tōna kaiako ki a ia. Kei te whakaoti a ia i tēnei: $352 \div 16 =$ Ka whakaotia e Tiare mā te tuhituhi i te $352 \div 16 = (160 \div 16) + (160 \div 16) + (32 \div 16)$</p> <p>E whakaae ana koe ki te rongoa a Tiare?</p> <p>I tō rōpū, hangaia he whakamāramatanga he aha tēnei mahi, he aha rānei koe i whakaaro ai kāore i te mahi. Ka taea e koe te hanga taurira</p>
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	me ētahi atu tau e whakamahi ana hoki i tēnei tauira? E mahi ana tēnei tauira me te whakarea?
Hei Awhina i te kaiako	<ul style="list-style-type: none"> Whakawātea i ngā ākongā kia arotahi ki te rautaki rongoā me te ahuwānuitanga, kaua e tatau i te rongoā. Miramiratia ngā tauira e tipu ana ngā ākongā.
Wa toha me te hononga	<p>Tipakohia ngā ākongā e whakamahi ana i te pātahitanga me ngā āhuatanga, kaua e tatau. Miramira ki ngā ākongā kāore e hiahiatia ana e koe te tatau, engari ka taea te whakamahi i te pātahitanga hei whakatika i ngā whārite rerekē.</p> <p>Hono:</p> <p>I whakaaro a Taine me whakaoti e Tiare te raruraru pēnei: $352 \div 16 = 352 \div 2 \div 4 \div 2$ E whakaae ana koe ki Taine? Ko tēhea te huarahi e mahi ai, he aha hoki? Me pēhea te whakatika a Taine i te raruraru e whai ake nei $528 \div 24$?</p>
Nga Whakaaro matua o te Ao Pangarau	Ka taea te whakaatu i ngā āhuatanga pāngarau hei whārite, arā ko ngā tau tōpū tōrunga, tōraro hoki. He tōraro te rahinga tūturu e iti iho ana i te kore. He tauaro nga tau tōrunga me te tōraro.
Nga Tini mata o te Marautanga	<p>Taurangi Te Whakawhānui Ahuatanga Tau Tau 7/8 Tūhura tāpiritanga kōaro hei tāpiri me te tango taurunga me ngā tau tōraro (tau takirua me ngā tauaro): h.t., $-6 + 8 = -6 + 6 + 2$. Whakamahi āhuatanga kōaro, herekore, tūmau, kōaro hoki ki ngā kīanga tae rā anō ki ngā tau tōraro.</p> <p>Whārite me te Hononga</p> <ul style="list-style-type: none"> whakaahua me te whakamahi āhuatanga kōaro, herekore, tohatoha, h.t., $O \times _ = _ \times O$. <p>hakarūnā rautaki taurangi e whai wāhi ana ki ngā tapeke, ngā otinga, ngā rerekētanga me te whakawhānui hoki i ngā kīanga ki te āhuatanga tohatoha: h.t., $2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7$.</p> <ul style="list-style-type: none"> kimi uara o tētahi kīanga, tētahi whārite rānei kua hoatu i ngā uara o ngā taurangirangi: h.t., tātaihia $w + 12$ mehemea $w = 4$.

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Whaingā Ako Kei te ako te mokopuna ki te :	Whakamārama me te whakatautika me pēhea e taea ai e koe te whakatika i ngā raruraru whakawehenga mā te wehe i te kaiwehe ki te tauwehe. E whakaatu ana ko te tohu ōrite hei tauākī whārite me te whakaatu ko ēhea mahi ki ngā taha e rua o tētahi whārite e pupuri ana i taua toenga.
Nga tini mata o te reo pangarau	Tauwehe, tau whakawehe, tau whakawehenga, ahuatanga herekore.
Rapanga Motuhake	Kimihia ngā tau e ngaro ana: $54 \times _ = (54 \times 5) + (54 \times 10) + (54 \times 3)$ $288 \div 3 \div 2 \div _ = 288 \div 12$ $38 \times 42 = 38 \times 3 \times _ \times 7$ $_ \div 24 = (240 \div 24) + (48 \div 2) + (48 \div 2)$
Ma te kaiako	

<p>Rapanga 11</p>	<p>Kōwhiria he tūemi kākahu hei hoko (hei tauira, he hū). Whakamahia te ipurangi hei kimi i te utu o ngā tūemi ōrite mai i ngā pātaka rerekē, toa rānei.</p> <p>Whakatau tata e hia ngā wā ka mau pea koe i tēnei tūemi.</p> <p>Ināianei tatauria te utu mō ia mau, i runga anō i te wāhi e kōwhiri ai koe ki te hoko.</p> <p>He whakamārama i ngā hua mā te ripanga, te ripakaukau rānei.</p> <p>Mō ia tūemi, tuhia he rerenga mō te kounga o te tūemi me te roa e matapae ai koe ka mutu i ngā tikanga o te mau me te roimata. He pēhea, he aha hoki i rerekē ai te utu i ia mau i waenganui i ngā tūemi kākahu rerekē?</p>
<p>Hei Awhina i te kaiako</p>	<ul style="list-style-type: none"> ● Whakawātea i ngā ākonga kia kitea ngā kōwhiringa iti rawa mō te tūemi kākahu tae atu ki ngā tūemi utu iti me te utu teitei ake me te tauwehe i te paetukutuku e pā ana ki te toitūtanga. ● Tautoko i ngā ākonga ki te whakaaro i te tauwehe tērā pea ka pā pea ki te ora, ā, ka pēhea te roa e pupuri ai, ka mau i tētahi tūemi kākahu. <p>He whakaaro hira ēnei aronga katoa ki te mahi kōwhiringa pūtea, kaua ko te utu noa iho. Mā te whakamahi i te inenga marama ka ngāwari kē atu te whakamahi a ngā ākonga i tētahi ōwehenga mō te utu mō ia mau, hei tauira, ka mahi i te maha o ngā mau i ia marama, me te ora hoki i ngā marama. Tirohia, e whakaaro ana ngā ākonga e hia ngā wā ka mau te wāhanga kākahu i ia marama, ā, ka taea te hanga i te utu mō ia mau mā te whakamahi i te ōwehenga. Me whakaatu e ngā ākonga a rātau kitenga mā te ripanga, te hira rānei.</p>
<p>Wa toha me te hononga</p>	<p>Tīpakohia ngā ākonga kua whakamahi ripanga, ripakau rānei hei whakataurite i ngā utu tae atu ki te roanga me te utu e tūmanakohia ana mō ia mau.</p> <p>Hono:</p> <p>He aha te mea hira, he aha hoki te whakaaro o tō whānau ina kōwhiri kākahu hei hoko?</p>
<p>Nga Whakaaro matua o te Ao Pangarau</p>	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuetanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ka taea te whakamahi i ngā</p>

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	tauirā me ngā pātahitanga, e whakaaturia ana, me te ahuhānui i ngā huarahi maha.
Nga Tini mata o te Marautanga	<ul style="list-style-type: none"> ● Mātau āhumoni ● Tau 7/8 ● tātai utu me te wāwāhinga moni ahakoa te rahinga o te moni. ● waihanga me te whakatairite mahere ahumoni ā-wiki, ā-marama, ā-tau: h.t., te penapena pūtea, ngā mahere utu waea pūkoro, ngā mahere pūtea me ngā hoko harangote.
Whainga Ako Kei te ako te mokopuna ki te :	<p>Tūhura, whakamārama me te whakatautika i te hoko tino pai e whakaaro ana ki ngā manakohanga whaiaro.</p> <p>Waihanga he mahere pūtea mā te whakamahi i tētahi ripakau, ripanga rānei. Whakamahia he ōwehenga hei mahi i te utu mō ia mau i tētahi tūemi kākahu</p>
Nga tini mata o te reo pangarau	Ko te utu, te hoko tino pai, te ōwehenga, te tāra, te hēneti.
Rapanga Motuhake	<p>Kōwhiria tētahi mea hei hoko. Whakamahia te ipurangi hei kimi i te utu o ngā tūemi ōrite mai i ngā pātaka rerekē, toa rānei. Whakatau tata e hia ngā wā ka mau pea koe i tēnei tūemi. Ināianei tatauria te utu mō ia mau, i runga anō i te wāhi e kōwhiri ai koe ki te hoko. He whakamārama i ngā hua mā te ripanga, te ripakau rānei. Mō ia tūemi, tuhia he rerenga mō te kounga o te tūemi me te roa o tō matapae ka mutu i ngā āhuatanga o te mau me te roimata me ngā au huatau. He pēhea, he aha hoki i rerekē ai te utu i waenganui i ngā toa rerekē o ngā tūemi.</p>
Ma te kaiako	

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Rapanga 12

Ata tirohia ki te tūtohi nei:.

	Amazon Prime	Neon	Disney Plus	Netflix
Details	Enjoy exclusive Amazon Originals as well as popular movies and TV shows	Binge the best. Huge range of TV shows and movies handpicked for Kiwis by Kiwis.	Disney Plus. Something for everyone!	Unlimited TV shows, movies and more.
Special offer	7-day free trial	Annual payment of \$199.99	Annual payment of \$149.99 for standard plan Annual payment of \$189.99 for premium plan.	
Pricing	\$10.99 per month	\$12.99 per month (basic plan) \$19.99 per month (standard plan)	\$14.99 per month (standard plan) \$18.99 per month (premium plan)	\$14.99 per month (basic plan) \$20.99 per month (standard plan) \$27.99 per month (premium plan)
Fine print	Cancel anytime	Cancel before end of billing period. No refunds.	Cancel before end of billing period. No refunds.	Cancel anytime

Whakamahia tētahi ripakau, ripanga rānei hei whakataurite i ngā kōwhiringa rerekē e pā ana ki ngā utu mahere ā-marama, ā-tau hoki. Mahia kia 5 neke atu rānei ngā tauākī pāngarau e whakataurite ana i te utu o ēnei ratonga roma. Whakamahia te reo pāngarau, pūtea tika hoki

- Kia wātea ngā tātaitai kia whakamahia e ngā ākonga mō te tūmahi. Tatari kia whakamahi ngā ākonga i tētahi ripakau (Excel mēnā ka taea) te mahere i ngā utu ā-marama me te whakamahi i tēnei hei kimi i ngā utu ā-tau. Ko te tikanga kia whakangāwari, kia tautokona hoki ngā ākonga ki te whakataurite i ngā utu i mua i ngā mahere ā-marama, ā-tau hoki mō te kamupene kotahi, puta noa i ngā kamupene rerekē. Hei tauira, e rua marama te utu ā-tau mō Neon i te utu ā-marama e ōrite ana ki te 16% hekenga utu.

Wa toha me te hononga

Tīpakohia ngā ākonga kua whakamahi ripanga, ripakau rānei hei whakataurite i ngā utu tae atu ki te utu o ngā mahere ā-marama, ā-

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	<p>tau rānei, ā, kua tauākī ki ngā whakaaturanga mai i ngā mahere utu. Hono: Mēnā he tono motuhake tā Netflix mō te rua marama e wātea ana, me pēhea tērā e pā ai ki tō rātou utu katoa e pā ana ki ērā atu kōwhiringa?</p>
Nga Whakaaro matua o te Ao Pāngarau	<p>E whakaatu ana ngā whārite i ngā pātahitanga o te ōritetanga i waenganui i ngā wāhanga i ia taha o te tohu ōrite. Ko ngā āhuatanga o te ōritetanga ko: Mēnā ka tāpirihia, ka whakaritea rānei te tau tūturu ōrite ki ngā taha e rua o tētahi whārite, ka pupuritia te ōritetanga; Mēnā ka whakanuia, ka wehea rānei ngā taha e rua o tētahi whārite e te tau tūturu ōrite (kāore e whakawehea e te 0), ka pupuritia te ōritetanga; E rua nga rahinga e ōrite ana ki te nuinga tuatoru kotahi e ōrite ana ki a rāua anō. Ka taea te whakaatu i ngā āhuatanga pāngarau hei whārite, arā ko ngā tau tōpū tōrunga, tōraro hoki. He tōraro te rahinga tūturu e iti iho ana i te kore. He tauaro nga tau tōrunga me te tōraro.</p>
Nga Tini mata o te Marautanga	<ul style="list-style-type: none"> ● Mātau āhumoni ● Tau 7/8 ● tātai utu me te wāwāhinga moni ahakoa te rahinga o te moni. waihanga me te whakatairite mahere ahumoni ā-wiki, ā-marama, ā-tau: h.t., te penapena pūtea, ngā mahere utu waea pūkoro, ngā mahere pūtea me ngā hoko harangote.
Whainga Ako Kei te ako te mokopuna ki te :	<p>Tūhura, whakamārama me te kōrerorero i ngā utu me ngā kōwhiringa rerekē mō ngā ratonga ōrite. Waihangatia he mahere pūtea mā te whakamahi i tētahi ripakau, ripanga rānei. Whakamahia ngā ōrautanga hei whakataurite i waenga i ngā utu.</p>
Nga tini mata o te reo pāngarau	<p>Ko te utu, te hoko pai rawa, te ōrau, te tāra, te hēneti, te whakahekenga utu.</p>
Rapanga Aromatawai	<p>Tīpakohia tētahi, ētahi rānei o ngā tūmahi aromatawai e whai ake nei (kua āpitihia ki te mutunga o te tuhinga) hei hohenga takitahi: N45: Ko ngā raruraru maha me te wehenga hei whakaoti. N45A: Ko ngā raruraru maha me te wehenga hei whakaoti. NA5: Ngā Āhuatanga o ngā tau me ngā mahi. NA5A: Ngā Āhuatanga o ngā tau me ngā mahi. N4: Ngā Integers me ngā tau tōraro.</p>
Ma te kaiako	

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DMIC
DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES
ASSESSMENT TASK

NUMBER - MULT / DIV: LEVEL 4 Rapanga N45

I te pokapū takahanga, e 225 nga haupae tūru. E 179 nga tūru o ia haupae. E hia nga tūru kai reira katoa?

Kei te neke te puna. E 3248 ngā pukapuka, ā, ka taea te whakauru pukapuka e 76 ki ia pouaka. E hia ngā pouaka e hiahiatia ana mo nga pukapuka?

Tuhia ō ake raruraru whakarea, wehenga rānei. Whakaatu me pēhea tō whakaoti i aua mea.

DMIC

DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASK

NUMBER - MULT / DIV: LEVEL 4 Rapanga N45A

I te mārō hokohoko, e 124 nga haupae mo nga kaka. E 288 nga motokā o ia haupae. E hia nga kamura kai reira katoa?

Kai te haere te kura, a, e 1642 nga tāngata e hiahia ana ki te waka. Ka taea e ia pahi te mau i te toko 38 nga tāngata. E hia nga pahi e hiahiatia ana?

Tuhia ō ake raruraru whakarea, wehenga rānei. Whakaatu me pēhea tō whakaoti i aua mea.

DMIC

DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASKS

NUMBER & ALGEBRA: LEVEL 4 Rapanga N5A

76×15

$37 + 43 + 40 + 36$

$99 \div 3 \div 3$

7×86

4×66

6^3

$99 \div 9$

$(70 \times 5) + (70 \times 10) + (6 \times 10) + (6 \times 5)$

12×22

$37 + 40 + 36 + 43$

$6 \times 6 \times 6$

$(7 \times 90) - (7 \times 4)$

Tirohia ngā rerenga tau o runga ake nei.

Whakaahuatia he aha ngā taurira ka kitea e koe.

He aha i mahi ai ō taurira?

Kai te mahi rātau me ētahi atu tau?

Ka mahi tonu rātau i ngā wā katoa?

Whakamārama me te whakatautika i ō whakaaro

DMIC

DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASKS

NUMBER & ALGEBRA: LEVEL 4 Rapanga N5AB

84×16

$56 + 79 + 44 + 38$

$88 \div 2 \div 2$

6×47

3×99

5^4

$88 \div 4$

$(80 \times 10) + (80 \times 6) + (4 \times 10) + (4 \times 6)$

9×33

$38 + 56 + 79 + 44$

$5 \times 5 \times 5 \times 5$

$(6 \times 50) - (6 \times 3)$

Tirohia ngā rerenga tau o runga ake nei.

Whakaahuatia he aha ngā tauira ka kitea e koe.

He aha i mahi ai ō tauira?

Kai te mahi rātau me ētahi atu tau?

Ka mahi tonu rātau i ngā wā katoa?

Whakamārama me te whakatautika i ō whakaaro

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DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASK

NUMBER – INTEGERS: LEVEL 4 Rapanga N4A

Why do we need negative numbers?

Give examples of how negative numbers can be useful.

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DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES ASSESSMENT TASK

NUMBER – INTEGERS: LEVEL 4 Rapanga N4A

Write a story that matches the equation.
Solve the story problem.

$$-16 + 20 =$$

$$15 - \underline{\quad} = 18$$

$$-12 + -6 =$$

$$\underline{\quad} - -9 = -11$$

$$-7 + \underline{\quad} = 10$$

$$-2 - 9 =$$