



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

GloSS

INTERVIEW 4





Instructions

- Commence the interview with the section targeted just below the Number Framework stage you think the student is at. Be willing to move on quickly, or even jump some sections if this level is too low. However, if the student finds the first section they are given too hard, go back to a previous section that they can answer.
- Ask the student **all** the tasks within a section. Generally these are three tasks on two face-to-face pages.
- Read each task to the student and show them the related Task Card.
- Give the student time to answer the question (you may need to wait for a few minutes).
- Prompt the student if you need to. For example, ask “*How did you work that out?*” or “*Can you talk me through what you were thinking?*” Do not ask these questions if the student answers quickly and it is obvious that they “just knew” it.
- Allow the student the opportunity to demonstrate **higher level strategies**. If they use a simple strategy (e.g., counting) ask “*Can you do it another way?*”
- Use the scoring guide below each task to determine the Number Framework Stage associated with the student’s response.
- Circle the relevant stage on the recording sheet.
- Record their strategy in the space under “Observations”.
- Use the decision rule provided at the end of each section to decide whether to continue the interview. If there is any doubt or if you think the student may be capable of showing higher strategies, **continue** the interview.
- Questions are designed so that they can be answered mentally.

MATERIALS NEEDED

- 20 counters.
- Two A5 sized cards to cover counters and isolate tasks.
- Set of Task Cards.
- One recording sheet per student.

INTERVIEW SCHEDULE



Section 1 TARGET: Stage 1 One-to-one counting

TASK 1

ACTION: Place 6 counters of the same colour on the table.

SAY: How many counters are there?

Stage	Strategy observed
0	Student cannot count 6 objects
1	Correctly counts the 6 objects

DECISION: If “1” is circled in **Task 1**, CONTINUE the interview.
If “0” is circled, rate the student at Stage 0 and STOP the interview



Section 2 TARGET: Stages 2–3 or 4 Counting from one or Advanced counting

TASK 2

INTERVIEW 4 TASK 2

$$3 + 4 = \square$$

SAY: Please hold out your hands for me.

SAY: Here are 3 counters.

SAY: Here are another 4 counters.

SAY: How many counters have you got altogether?

ACTION: Place 3 counters in the student's hand.

ACTION: Place 4 counters in their other hand.

ACTION: Close the student's hands to encourage imaging.

ACTION: Allow the student to open their hands if they find imaging difficult.

Stage	Strategy observed
1	Cannot solve the addition problem (Stage 1)
2–3	Physically counts all the objects from 1 on materials (Stage 2) Correctly counts all the items from 1 by imaging (Stage 3)
4 or higher	Counts on e.g., 4, 5, 6, 7 or 5, 6, 7 Knows 3 + 4

DECISION: If either “2–3” or “4” are circled in Task 2, CONTINUE the interview.
If “1” is circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 3 TARGET: Stages 4 or Early 5

Advanced counting or Early additive part-whole

Do all **three** tasks on these two pages.

TASK 3

ACTION: Place 8 counters under a card then place 7 under another card.

SAY: Here are 8 counters, and here are 7 counters.
How many counters are there altogether?

INTERVIEW 4 TASK 3

$$8 + 7 = \square$$

Stage	Strategy observed
3	<p>Cannot solve the problem (After removing the cards – Stage 1)</p> <p>Counts all objects from 1 on materials (Stage 2) e.g., 1, 2, 3, ..., 15</p> <p>Counts all objects from 1 by imaging (Stage 3) e.g., 1, 2, 3, ..., 15</p>
4	<p>Counts on (Stage 4) e.g., 9, 10, 11, ... , 14, 15 or 8, 9, 10, ..., 14, 15</p>
Early 5 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Making to ten e.g., $8 + 2 = 10$; $10 + 5 = 15$ - Doubling with compensation e.g., $7 + 7 = 14$; $14 + 1 = 15$ or $8 + 8 = 16$; $16 - 1 = 15$ - Addition fact e.g., $8 + 7 = 15$

TASK 4

SAY: There are 5 motorbikes in each row.

SAY: There are 5 rows of motorbikes.

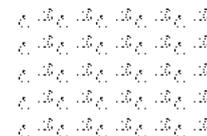
SAY: How many motorbikes are there altogether?

ACTION: Sweep one row with your finger

ACTION: Point to each row one by one

INTERVIEW 4 TASK 4

There are 5 motorbikes in each row.
There are 5 rows of motorbikes.



How many motorbikes are there altogether?

Stage	Strategy observed
3	<p>Cannot solve the problem</p> <p>Counts all objects from 1 on materials (Stage 2) e.g., 1, 2, 3, 4, 5, 6, ..., 25</p> <p>Counts all objects from 1 by imaging (Stage 3) e.g., 1, 2, 3, 4, 5, 6, ..., 25</p>
4	<p>Skip counting (Stage 4) e.g., 5, 10, 15, 20, 25</p>
Early 5 or higher	<p>Uses an additive or multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Repeat addition e.g., $5 + 5 + 5 + 5 + 5 = 25$ - Additive strategies e.g., $5 + 5 = 10$; $10 + 10 = 20$; $20 + 5 = 25$ - Multiplication strategies e.g., $4 \times 5 = 20$; $20 + 5 = 25$ - Multiplication fact e.g., $5 \times 5 = 25$

TASK 5

ACTION: Provide 12 counters (lollipops).
 Allow the student access to these counters if necessary.

SAY: You have 12 lollipops for your party.
 A quarter of the lollipops are lemon.
 How many lemon lollipops are there?

Note: Say "fourth" instead of "quarter" if this is more familiar to your student.



Stage	Strategy observed
2–4	<p>Cannot solve the problem</p> <p>Equally shares the lollipops, on materials or by imaging (Stage 2–4)</p>
<p>Early 5 or higher</p>	<p>Uses an additive or multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Additive partitioning e.g., $6 + 6 = 12$ and $3 + 3 + 3 + 3 = 12$ - Multiplication or division strategy e.g., $3 \times 3 = 9$; $9 + 3 = 12$ - Multiplication or division fact e.g., $4 \times 3 = 12$ or $12 \div 4 = 3$

DECISION: If any “E5” are circled in **Tasks 3, 4 or 5**, or if the “4s” are circled in **both Task 3 and Task 4**, CONTINUE the interview.
 Otherwise STOP the interview. If in any doubt, CONTINUE the interview.



Section 4 TARGET: Stage 5

Early additive part-whole

Do all **three** tasks on these two pages.

TASK 6

SAY: Janine has \$49 in her piggy bank.
She gets \$27 for her birthday.
How much money has Janine got now?

INTERVIEW 4 TASK 6

Janine has \$49 in her piggy bank.
She gets \$27 for her birthday.



How much money has Janine got now?

Stage	Strategy observed
Early 5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Counting on (Stage 4) e.g., 49, 50, 51, ... , 76</p> <p>Skip counting in tens and ones (Stage 4) e.g., [49] 59, 69, 70, 71, ..., 76</p> <p>Repeat addition in tens and ones (Stage E5) e.g., 49 + 10 = 59; 59 + 10 = 69; 70, 71, ..., 76</p> <p>Mix of counting and part-whole strategies (Stage E5) e.g., [49] 59, 69; 69 + 1 = 70; 70 + 6 = 76</p>
5 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(40 + 20) + (9 + 7) = 76$ - Adding on in parts e.g., $49 + 20 = 69$; $69 + 1 + 6 = 76$ or $40 + 27 = 67$; $67 + 9 = 76$ - Making to ten e.g., $49 + 27 = (49 + 1) + (27 - 1) = 50 + 26 = 76$

TASK 7

SAY: There are 110 students at a sports tournament.
There are 10 students in each team.
How many teams are there?

INTERVIEW 4 TASK 7

There are 110 students at a sports tournament.
There are 10 students in each team.



How many teams are there?

Stage	Strategy observed
Early 5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Skip counting (Stage 4) e.g., 10, 20, 30, 40, ..., 110</p> <p>Repeated addition (Stage E5) e.g., $10 + 10 + 10 + 10 + \dots + 10 = 110$</p>
5 or higher	<p>Uses an additive or multiplicative strategy e.g.</p> <ul style="list-style-type: none"> - Additive strategies e.g., $10 + 10 = 20$; $20 + 20 = 40$; $40 + 40 = 80$; $8 + 2 + 1 = 11$ - Derive from multiplication facts e.g., $10 \times 10 = 100$; $100 + 10 = 110$; $10 + 1 = 11$ - Multiplication facts e.g., $11 \times 10 = 110$ so the answer is 11

TASK 8

SAY: There are 5 blue cars.
That is one-quarter of the cars.
How many cars are there altogether?

Note: Say "fourth" instead of "quarter" if this is more familiar to your student.

INTERVIEW 4 TASK 8

There are 5 blue cars.
That is one-quarter ($\frac{1}{4}$) of the cars.



How many cars are there altogether?

Stage	Strategy observed
Early 5	Cannot solve the problem or Uses an earlier numeracy stage Counting strategy (Stage 2–4) e.g., 1, 2, 3, 4, 5, 6, ..., 10, 11, ..., 15, 16, ..., 20
5 or higher	Uses an addition or multiplication strategy e.g., - Additive strategies e.g., $5 + 5 = 10$; $10 + 5 = 15$; $15 + 5 = 20$ - Multiplication facts e.g., $5 \times 4 = 20$ or $20 \div 4 = 5$

DECISION: If any "5" are circled in **Tasks 6, 7 or 8**, CONTINUE the interview.
If only "E5" are circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 5 TARGET: Early Stage 6

Advanced additive part-whole

Do all **three** tasks on these two pages.

TASK 9

SAY: 147 lambs had already been born.
Another 36 lambs were born.
How many lambs were there altogether?

INTERVIEW 4 TASK 9

147 lambs had already been born.
Another 36 lambs were born.



How many lambs were there altogether?

Stage	Strategy observed
5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Skip counting in tens and ones (Stage 4) e.g., [147] 157, 167, 177, 178, 179, ..., 183</p> <p>Repeat addition in tens and ones (Stage E5) e.g., $147 + 10 + 10 + 10 + 1 + 1 + \dots + 1 = 183$</p> <p>Mix of counting and part-whole strategies (Stage E5) e.g., $147 + 10 + 10 + 10 = 177$; $177 + 3 + 3 = 183$</p> <p>Attempts part-whole strategy with error (Stage E5) e.g., 173 (no carrying)</p>
Early 6 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(140 + 30) + (7 + 6) = 170 + 13 = 183$ - Adding on in parts e.g., $147 + 30 = 177$; $177 + 3 + 3 = 183$ or $140 + 36 = 176$; $176 + 4 + 3 = 183$

TASK 10

SAY: You have 60 chairs to put around some tables.
Five chairs fit around each table.
How many tables do you need?

INTERVIEW 4 TASK 10

You have 60 chairs to put around some tables.
5 chairs fit around each table.

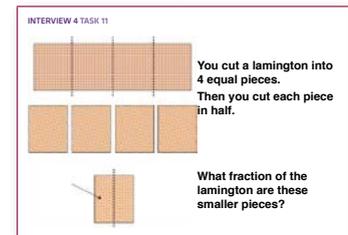


How many tables do you need?

Stage	Strategy observed
5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses an additive strategy e.g.,</p> <ul style="list-style-type: none"> - Skip counting (Stage 4) e.g., 5, 10, 15, 20, 25, ..., 60 or 60, 55, 50, ..., 5 - Repeated addition (Stage E5) e.g., $5 + 5 + 5 + \dots + 5 = 60$ - Doubling additively (Stage 5) e.g., $5 + 5 = 10$; $10 + 10 = 20$; $20 + 20 + 20 = 60$
Early 6 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Doubling and halving e.g., $6 \times 10 = 60$; $12 \times 5 = 60$ so the answer is 12 - Derives from multiplication facts e.g., $10 \times 5 = 50$; $2 \times 5 = 10$; $10 + 2 = 12$ - Multiplication facts e.g., $5 \times 12 = 60$ or $60 \div 5 = 12$

TASK 11

SAY: You cut a lamington into 4 equal pieces.
Then you cut each piece in half.
What fraction of the lamington are these smaller pieces?



Stage	Strategy observed
5	Cannot solve the problem OR Uses an earlier numeracy stage Counting strategy (Stage 4) e.g., 1, 2, 3, ..., 8 so the pieces are eighths
Early 6 or higher	Uses an additive or multiplicative strategy e.g., - Additive strategy e.g., $2 + 2 + 2 + 2 = 8$, so these pieces are quarters, and the smaller ones are eighths - Multiplicative strategy e.g., $4 \times 2 = 8$ so the pieces are eighths

DECISION: If any "E6" are circled in **Tasks 9, 10** or **11**, CONTINUE the interview.
If **only** "5" are circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 6 TARGET: Stage 6

Advanced additive part-whole

Do all **three** tasks on these two pages.

TASK 12

SAY: There are 143 calves on the farm.
89 of the calves are in the shed.
How many calves are not in the shed?

INTERVIEW 4 TASK 12

There are 143 calves on the farm.
89 of the calves are in the shed.



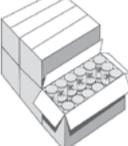
How many calves are not in the shed?

Stage	Strategy observed
Early 6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Mix of counting and part-whole strategies (Stage E5) e.g., [89] 99, 109, ..., 139; $139 + 1 = 140$; $140 + 3 = 143$; $50 + 1 + 3 = 54$</p> <p>Attempts part-whole strategy with error (Stage 5) e.g., $143 - 90 = 53$; $53 - 1 = 52$ (compensates in the wrong direction)</p>
6 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(140 - 80) + (3 - 9) = 60 - 6 = 54$ - Reversibility e.g., $89 + 1 = 90$; $90 + 10 = 100$; $100 + 43 = 143$; $1 + 10 + 43 = 54$ - Rounding and compensation e.g., $143 - 90 = 53$; $53 + 1 = 54$ - Subtracting in parts e.g., $143 - 80 = 63$; $63 - 9 = 54$ - Equal additions e.g., $144 - 90 = 54$

TASK 13

SAY: Each carton holds 24 cans of spaghetti.
There are 5 cartons.
How many cans of spaghetti is that?

INTERVIEW 4 TASK 13



Each carton holds 24 cans of spaghetti.
There are 5 cartons.

How many cans of spaghetti is that?

Stage	Strategy observed
Early 6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses an additive strategy e.g.,</p> <ul style="list-style-type: none"> - Doubling additively (Stage 5) e.g., $24 + 24 = 48$; $48 + 48 = 96$; $96 + 24 = 120$
6 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $5 \times 24 = (5 \times 20) + (5 \times 4) = 100 + 20 = 120$ - Doubling and halving e.g., $5 \times 24 = 10 \times 12 = 120$ - Derived from a known fact e.g., $25 \times 5 = 125$; $125 - 5 = 120$

TASK 14

SAY: There are 8 swans on the lake.
The other two-thirds of the birds on the lake are ducks.
How many ducks are there on the lake?

INTERVIEW 4 TASK 14

There are 8 swans on the lake.
The other two-thirds ($\frac{2}{3}$) of the birds on the lake are ducks.



How many ducks are there on the lake?

Stage	Strategy observed
Early 6	Cannot solve the problem or Uses an earlier numeracy stage Uses additive strategies only (Stage 5) e.g., $8 + 8 + 8 = 24$ so 24 birds in total; $8 + 8 = 16$
6 or higher	Uses multiplicative strategies e.g., $3 \times 8 = 24$ so 24 birds in total then multiplies (or adds) to get i.e., $2 \times 8 = 16$ [or $8 + 8 = 16$] or $1 - \frac{2}{3} = \frac{1}{3}$; $\frac{1}{3} = 8$; $\frac{2}{3} = 2 \times 8 = 16$

DECISION: If any “6” are circled in **Tasks 12, 13** or **14**, CONTINUE the interview.
If only “E6” are circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 7 TARGET: Early Stage 7

Advanced multiplicative part-whole

Do all **three** tasks on these two pages.

TASK 15

SAY: Tony was 0.8 metres tall.
Three years later he was 1.25 metres tall.
How much had he grown?

INTERVIEW 4 TASK 15

Tony was 0.8 metres tall.
Three years later he was 1.25 metres tall.



How much had he grown?

Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Misunderstands decimal place value (Stage 6) e.g.,</p> <ul style="list-style-type: none"> - Ignores the decimal points e.g., $125 - 8 = 117$ or $125 - 80 = 45$ [Check to see if they self-correct to 0.45 or 45cm then code as “E7”] - Treats numbers after the decimal as whole numbers e.g., $1.25 - 0.8 = 1.17$
Early 7 or higher	<p>Uses part-whole strategies with decimal place value understanding e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(1.2 - 0.8) + (0.05 - 0) = 0.4 + 0.05 = 0.45$ - Making to ones e.g., $0.8 + 0.2 = 1.0$; $1.0 + 0.25 = 1.25$; $0.2 + 0.25 = 0.45$ - Equal addition e.g., $1.45 - 1.0 = 0.45$

TASK 16

SAY: Each barrel weighs 27 kilograms.
There are 7 barrels.
How much do the barrels weigh altogether?

INTERVIEW 4 TASK 16

Each barrel weighs 27 kilograms.
There are 7 barrels.



How much do the barrels weigh altogether?

Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses additive strategies (Stage 5) e.g., $27 + 27 = 54$; $54 + 54 = 108$; $108 + 108 = 216$; $216 - 27 = 189$</p> <p>Uses a mix of multiplicative and additive strategies (Stage 6) e.g., $20 \times 7 = 140$; $140 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 189$</p>
Early 7 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning with basic facts e.g., $(20 \times 7) + (7 \times 7) = 140 + 49 = 189$ or $(7 \times 30) - (7 \times 3) = 210 - 21 = 189$ - Derive from basic facts e.g., $(25 \times 4) + (25 \times 3) = 175$; $175 + 2 \times 7 = 189$ or $10 \times 7 = 70$ so $20 \times 7 = 140$; $7 \times 5 = 35$; $7 \times 2 = 14$; $140 + 35 + 14 = 189$

TASK 17

SAY: Yani wants to make 23 jugs of juice for a party.
Each jug of juice takes one-fifth of a packet of powder to make.
How many packets of powder does Yani need?

INTERVIEW 4 TASK 17

Yani wants to make 23 jugs of juice for a party.
Each jug of juice takes one-fifth ($\frac{1}{5}$) of a packet of powder to make.



How many packets of powder does Yani need?

Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses additive strategies (Stage 5) e.g., $5 + 5 + 5 + 5 = 20$ so 4 packets make 20 jugs, 1 more sachet makes 25 jugs</p>
Early 7 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Division with remainder e.g., $23 \div 5 = 4 \text{ r } 3$, so 5 packets will make more than 23 jugs - $4 \times 5 = 20$, for 20 jugs, so 5 packets would be needed - Division with fraction e.g., $23 \div 5 = 4 \text{ r } 3 = 4\frac{3}{5}$; so need 5 packets

DECISION: If any “E7” are circled in **Tasks 15, 16** or **17**, CONTINUE the interview.
If only “6” are circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 8 TARGET: Stage 7

Advanced multiplicative part-whole

Do all **three** tasks on these two pages.

TASK 18

SAY: One plant is 0.67 metres tall and the other is 0.9 metres tall.
Which one is taller and by how much (in metres)?

INTERVIEW 4 TASK 18

One plant is 0.67 metres tall and the other is 0.9 metres tall.



Which one is taller and by how much (in metres)?

Stage	Strategy observed
Early 7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Misunderstands decimal place value (Stage 6) e.g.,</p> <ul style="list-style-type: none"> - Ignores the decimal points e.g., $67 - 9 = 58$ - Treats numbers after the decimal as whole numbers e.g., $0.9 - 0.67 = 0.67 - 0.9 = 0.58$
7 or higher	<p>Uses part-whole strategies with decimal place value understanding e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(0.9 - 0.6) + (0.00 - 0.07) = 0.3 - 0.07 = 0.23$ - Making to tenths e.g., $0.67 + 0.03 = 0.7$; $0.7 + 0.2 = 0.9$; $0.03 + 0.2 = 0.23$ - Subtracting in parts e.g., $0.9 - 0.6 = 0.3$; $0.3 - 0.07 = 0.23$ - Equal addition e.g., $0.9 - 0.67 = 0.93 - 0.7 = 0.23$

TASK 19

SAY: There are 330 children wanting to play rugby.
Each team has 15 players.
How many teams will there be?

INTERVIEW 4 TASK 19

There are 330 children wanting to play rugby.
Each team has 15 players.



How many teams will there be?

Stage	Strategy observed
Early 7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses a mix of multiplicative and additive strategies (Stage 6) e.g., $15 + 15 = 30$; $30 \times 10 = 300$; $300 + 30 = 330$; $20 + 2 = 22$</p>
7 or higher	<p>Uses multiplicative strategies e.g.,</p> <ul style="list-style-type: none"> - Partitioning e.g., $330 \div 15 = 330 \div (3 \times 5)$; $330 \div 3 = 110$; $110 \div 5 = 22$ - Doubling e.g., $330 \div 15 = 660 \div 30 = 22$ - Basic facts with adjustment e.g., $33 \div 3 = 11$ so $330 \div 30 = 11$; $11 \times 2 = 22$ or $2 \times 15 = 30$; $20 \times 15 = 300$; $20 + 2 = 22$

TASK 20

SAY: You put three-quarters of a cup of powder in each load of washing.
There are 6 loads to do.
How much powder do you need?

INTERVIEW 4 TASK 20
You put three-quarters ($\frac{3}{4}$) of a cup of powder in each load of washing.
There are 6 loads to do.



How much powder do you need?

Note: Say "three-fourths" instead of "three-quarters" if this is more familiar to your student.

Stage	Strategy
Early 7	Cannot solve the problem or Uses an earlier numeracy stage
7 or higher	Uses an additive strategy e.g., $\frac{3}{4} + \frac{3}{4} = 1\frac{1}{2}$, $1\frac{1}{2} + 1\frac{1}{2} = 3$, $3 + 1\frac{1}{2} = 4\frac{1}{2}$ Uses a multiplicative strategy e.g., $6 \times \frac{3}{4} = (6 \times 3) \div 4 = \frac{18}{4} = 4\frac{1}{2}$ or $\frac{1}{4}$ of 6 = $\frac{6}{4} = 1\frac{1}{2}$; $1\frac{1}{2} \times 3 = 4\frac{1}{2}$

DECISION: If any "7" are circled in **Tasks 18, 19** or **20**, CONTINUE the interview.
If only "E7" are circled, STOP the interview. If in any doubt, CONTINUE the interview.



Section 9 TARGET: Early Stage 8 Advanced proportional

Do both tasks on this page.

TASK 21

SAY: Ron has to drive 18.5 kilometres to meet his friend.
He gets a flat tyre after one-fifth of the trip.
How far did he drive before he got a flat tyre?

INTERVIEW 4 TASK 21

Ron has to drive 18.5 kilometres to meet his friend.
He gets a flat tyre after $\frac{1}{5}$ of the trip.



How far did he drive before he got a flat tyre?

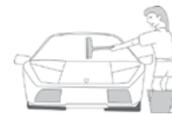
Stage	Strategy observed
7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Attempts multiplication strategy (Stage 6) e.g., $5 \times 3 = 15$ and $5 \times 4 = 20$ so the answer is between 3 and 4 (and over 3.5)</p>
Early 8 or higher	<p>Uses multiplication strategies e.g.,</p> <ul style="list-style-type: none"> - Uses decimal equivalent e.g., $\frac{1}{5} = 0.2$; $2 \times 18.5 = 37$ so $0.2 \times 18.5 = 3.7$ - Rounds and compensates e.g., $20 \div 5 = 4$; $1.5 \div 5 = 0.3$ so $18.5 \div 5 = 4 - 0.3 = 3.7$ or $18 \div 5 = 3 \text{ r } 3 = 3\frac{3}{5} = 3.6$; $\frac{1}{5} \times 0.5 = 0.1$; $3.6 + 0.1 = 3.7$ - Interpolates between known facts e.g., $5 \times 3 = 15$ and $5 \times 4 = 20$; 18.5 is $3.5 \div 5 = \frac{7}{10} = 0.7$ of the way between 15 and 20, so the answer is 3.7 - Fractional multiplication, e.g., $18.5 = 18\frac{1}{2} = \frac{37}{2}$; $\frac{37}{2} \times \frac{1}{5} = \frac{37}{10} = 3\frac{7}{10} (= 3.7)$ - Doubling and halving, e.g., $18.5 \times 2 = 37$; $\frac{1}{5} \div 2 = \frac{1}{10}$; $37 \times \frac{1}{10} = 3.7$

TASK 22

SAY: It takes Arana 6 hours to service 14 cars.
Each car takes the same time to service.
How long will it take him to service 21 cars?

INTERVIEW 4 TASK 22

It takes Arana 6 hours to service 14 cars.
Each car takes the same time to service.



How long will it take him to service 21 cars?

Stage	Strategy observed
7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses inappropriate additive strategy (Stage 5) e.g., $14 + 7 = 21$; $6 + 7 = 13$ or $14 - 8 = 6$; $21 - 8 = 13$</p> <p>Uses estimation (Stage 6/7) e.g., Half of 14 is 7; 6 is less than half of 14; 9 or 10 is less than half of 21</p>
Early 8 or higher	<p>Uses a proportional approach e.g.,</p> <ul style="list-style-type: none"> - Multiplicative strategies e.g., $14 \times 1.5 = 21$; $6 \times 1.5 = 9$ - Unitising e.g., 6 cars take 14 hours so 1 car takes $\frac{6}{14}$ hour = $\frac{3}{7}$ hour; $\frac{3}{7}$ of 21 = 9 - Equivalent fractions or ratios e.g., $14:21 = 2:3 = 6:9$ so the answer is 9 or $6:14 = 3:7 = 6:9$ so the answer is 9

Stop the interview