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Number Machines with Clear Steps - Year 3

Table of Contents	
Presentation: Number Machines with Clear Steps	
Teacher guide: Five-lesson sequence	
Display: Start, record and stop	
Worked examples: 12 number-machine cards	
Worksheet 1: Guided trace	
Worksheet 2: Core trace	
Worksheet 3: Transfer and repair	
Game 1: Repair rules and worked turn	
Game 2: Repair cards 1-6	
Game 3: Repair cards 7-12	
Worksheet 4: Write and test a rule	
Worksheet 5: Repair and transfer	
Quiz: Number Machines with Clear Steps	
Assessment: Number Machines with Clear Steps	
Rubric: Number Machines with Clear Steps	



Teacher guide 1/3 – prepare and model

Learning target

Learners follow and create finite arithmetic rules with an explicit record-count decision.

Success: trace two rules, then write one another student can reproduce.

Equipment and setup

Display R1; cut R4 challenge cards; prepare step cards, counters and pencils.

Copy R3 practice, R5 rehearsals and R6 assessment as needed. No account or device is required.

Lesson 1 – ordered steps

Diagnostic: ask $4 + 3$ and whether 4 is recorded before the first addition.

Model R1: record 4, ask if five values exist, then follow YES/NO. Use R2 cards 1–3.

Check: each learner names start action and stop test; reteach only the insecure part.

Lesson 2 – intermediate records

Model R5: 10, 2 from start 2, add 4, four records.

Use R3 guided page and R2 cards 4–6; count the start as record 1.

Ask learners to explain why the fourth value stops the machine.

Teacher guide 2/3 – practice and assess

Lesson 3 – decisions and repair

Contrast five records with five additions after the start.

Use R3 core page and R4 game. Demonstrate the worked turn, then partners repair and test cards.

Listen for explicit YES-stop and NO-repeat wording, not just the right number list.

Lesson 4 – write and test

Use R3 transfer then R5 rehearsal pages. Ask partners to trace exact wording.

Give feedback on one missing step or ambiguous count, then start a fresh count.

Lesson 5 – independent evidence

Use R6 without displaying answers. Learners trace two rules and write one.

Apply R7 rubric to actual traces, stop reasoning and clarity of the written rule.

Record one next step for each partner.

Access and challenge

Support: physical step cards, partial traces and oral explanations.

Core: complete finite rule and evidence. Extension: change only the target count and predict the extra record.

Keep the same target skill; reduce incidental reading or motor load where needed.

Teacher guide 3/3 – game key and marking

Repair-card key: acceptable sample moves

- 1 choose and state a start; 2 say when to record and what “four” counts;
- 3 after recording 4, stop at five records (four additions), not five additions;
- 4 replace “done” with an explicit record count; 5 18 is unreachable from 5 by +4, use count;
- 6 record 2 first, then add 3 with a finite count; 7 specify the missing start;
- 8 specify a finite target count; 9 add the NO branch; 10 add the YES branch;
- 11 distinguish five in all from five after start; 12 never record after the stop decision.

Closed-task anchors

Fixed five-record trace: 4, 7, 10, 13, 16. Four-record add-4 trace: 2, 6, 10, 14.

R6 A: 7, 11, 15, 19. R6 B: 20, 17, 14, 11, 8.

R6 C sample: record 6; YES adds 4 and records stops; NO adds 5 and records; 6, 11, 16, 21.

Marking open responses

Accept alternative precise wording and either permitted add-2 or add-5 rule.

Require recorded start, ordered action, exact count question, both paths and a reproducible trace.

The quiz supplements, but does not replace, the independent R6 performance evidence.

Number Machines with Clear Steps

Record 4.

Have five values been recorded?

YES → Stop.

NO → Add 3, record the new value, then check again.

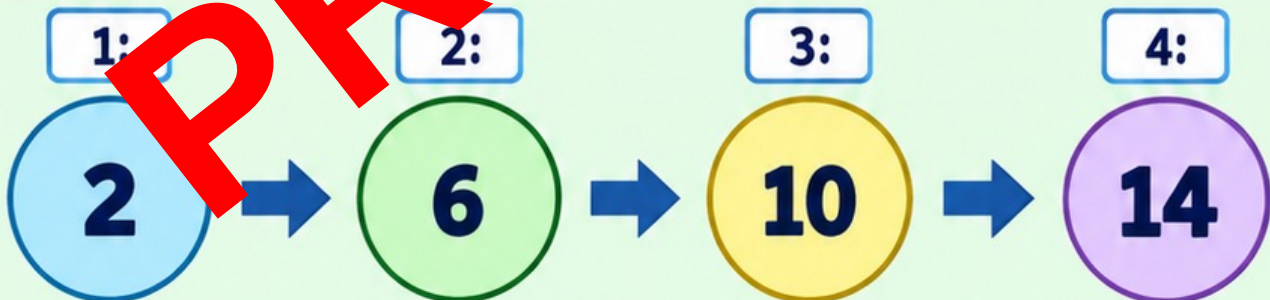
Example 1

Start at 4 and follow the rule. Five values are recorded.



Example 2

Start at 2, add 4, and record four values.



Different!

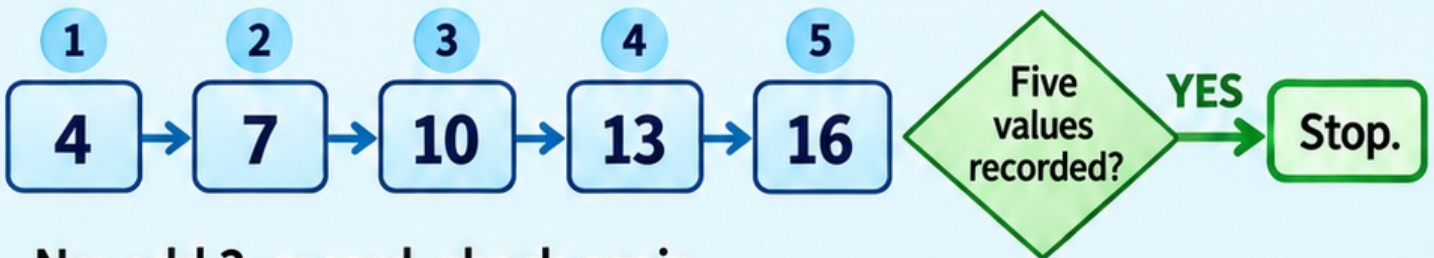
Add 3 five times after recording 4 makes **SIX** recorded values, so it is different from “record five values.”



The starting value counts as the first record, and the YES/NO decision stops a finite algorithm.

Count five records

Start 4. Record it. Have five values been recorded?
Yes: stop. No: add 3, record, check again.



No: add 3, record, check again.

Count four records

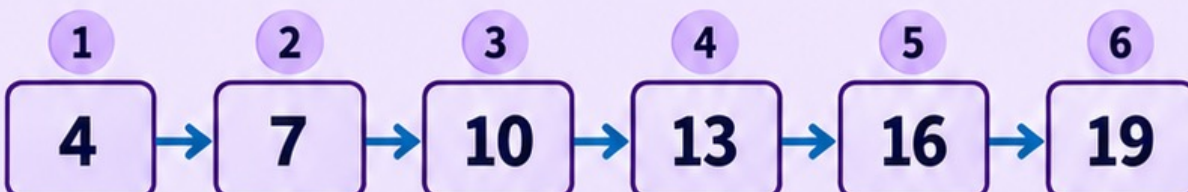
Start 2. Record it. Have four values been recorded?
Yes: stop. No: add 4, record, check again.



No: add 4, record, check again.

Spot the difference

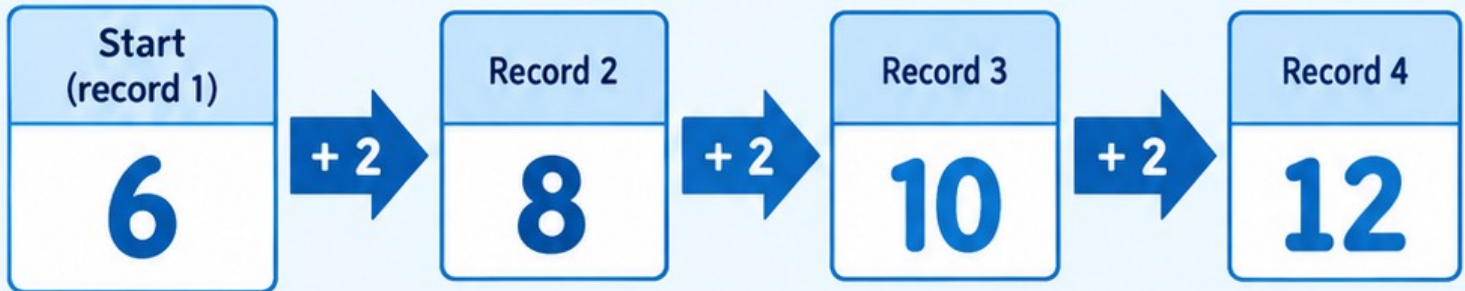
Start 4. Add 3 five times, recording after each addition.



Six records, not five.

Number Machine 4

Start 6. Record it. Add 2 until **FOUR** values have been recorded.



Have the required number of values been recorded?
Yes: stop. No: repeat the named action and record.

Number Machine 5

Start 9. Record it. Subtract 2 until **FOUR** values have been recorded.



Have the required number of values been recorded?
Yes: stop. No: repeat the named action and record.

Number Machine 6

Start 3. Record it. Add 5 until **THREE** values have been recorded.



Have the required number of values been recorded?
Yes: stop. No: repeat the named action and record.

Card 7

Number machine

Start:

5 (first number in the sequence)

Start 5. Record it.

Add 4 until FOUR values have been recorded.

Action:

Add 4 each time.

5

9

13

17

Have the required number of values been recorded?

Yes: stop. No: repeat the named action and record.

Card 8

Number machine

Start:

4 (first number in the sequence)

Original instruction (vague)

Add 2 until done.

Problem:

No start or stop count.

Repaired instruction

Start 4. Record it.

Add 2 until FOUR values have been recorded.

Action:

Add 2 each time.

4

6

8

10

Have the required number of values been recorded?

Yes: stop. No: repeat the named action and record.

Card 9

Number machine

Start:

2 (first number in the sequence)

Original instruction (vague)

Five numbers after the start.

Problem:

This could mean six values in all.

Repaired instruction

Start 2. Record it.

Add 3 until FIVE values in all, including the start, have been recorded.

Action:

Add 3 each time.

2

5

8

11

14

Have the required number of values been recorded?

Yes: stop. No: repeat the named action and record.

Number Machine 10

Start 1. Record it. Add 6 until **FOUR** values have been recorded.

Start

1

Record the start first;
then repeat the action.

Values (trace the numbers)

1

7

13

19

Have the required number of values been recorded?

Yes: stop. **No:** repeat the named action and record.

Number Machine 11

Start 20. Record it. Subtract 3 until **FIVE** values have been recorded.

Start

20

Record the start first;
then repeat the action.

Values (trace the numbers)

20

17

14

11

8

Have the required number of values been recorded?

Yes: stop. **No:** repeat the named action and record.

Number Machine 12

Start 7. Record it. Add 3 until **FOUR** values have been recorded.

Start

7

Record the start first;
then repeat the action.

Values (trace the numbers)

7

10

13

16

Have the required number of values been recorded?

Yes: stop. **No:** repeat the named action and record.

Trace the number machines — guided practice

Name: _____

Record the start as value 1. Check the count. If NO, do the action and record. If YES, stop.

1. Start 4. Add 3. Stop when FIVE values have been recorded.

1	2	3	4	5

Have you recorded FIVE values?

Yes ☐ No ☐

I stopped because _____ values were recorded.

2. Start 2. Add 4. Stop when FOUR values have been recorded.

1	2	3	4

Have you recorded FOUR values?

Yes ☐ No ☐

I stopped because _____ values were recorded.

3. Start 6. Add 2. Stop when FOUR values have been recorded.

1	2	3	4

Have you recorded FOUR values?

Yes ☐ No ☐

I stopped because _____ values were recorded.

4. Start 9. Subtract 2. Stop when FOUR values have been recorded.

1	2	3	4

Have you recorded FOUR values?

Yes ☐ No ☐

I stopped because _____ values were recorded.

Trace the number machines — guided practice

Name: **ANSWERS**

Record the start as value 1. Check the count. If NO, do the action and record. If YES, stop.

1. Start 4. Add 3. Stop when FIVE values have been recorded.

1	2	3	4	5
4	7	10	13	16

Have you recorded FIVE values?

Yes ☒ No ☐

I stopped because 5 values were recorded.

2. Start 2. Add 4. Stop when FOUR values have been recorded.

1	2	3	4
2	6	10	14

Have you recorded FOUR values?

Yes ☒ No ☐

I stopped because 4 values were recorded.

3. Start 6. Add 2. Stop when FOUR values have been recorded.

1	2	3	4
6	8	10	12

Have you recorded FOUR values?

Yes ☒ No ☐

I stopped because 4 values were recorded.

4. Start 9. Subtract 2. Stop when FOUR values have been recorded.

1	2	3	4
9	7	5	3

Have you recorded FOUR values?

Yes ☒ No ☐

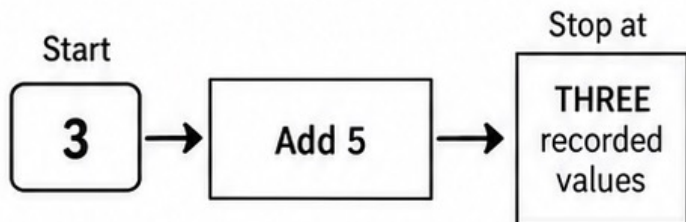
I stopped because 4 values were recorded.

Name: _____

Trace the number machines — core practice

Record the start first. Repeat the action only while the answer to the count check is NO. Stop at YES.

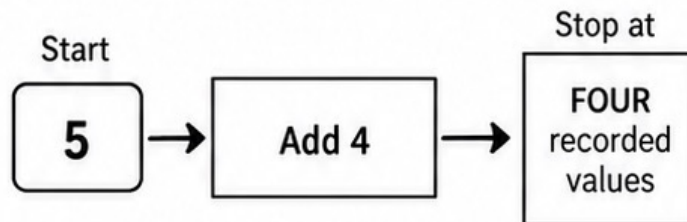
1.



Recorded values: _____

Target count reached? Yes ☐ No ☐

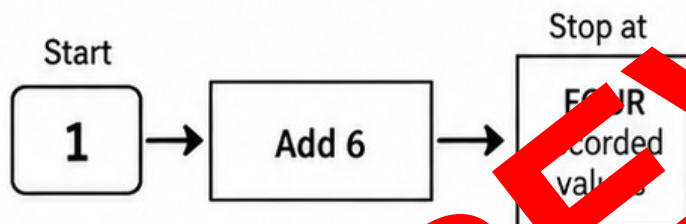
2.



Recorded values: _____

Target count reached? Yes ☐ No ☐

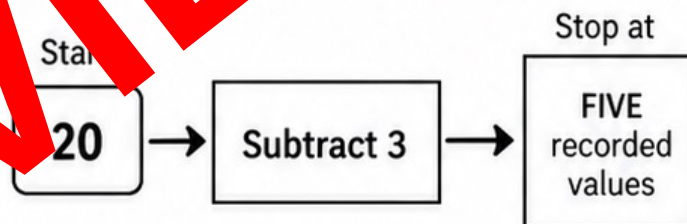
3.



Recorded values: _____

Target count reached? Yes ☐ No ☐

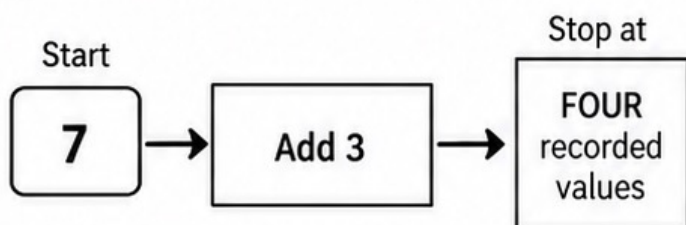
4.



Recorded values: _____

Target count reached? Yes ☐ No ☐

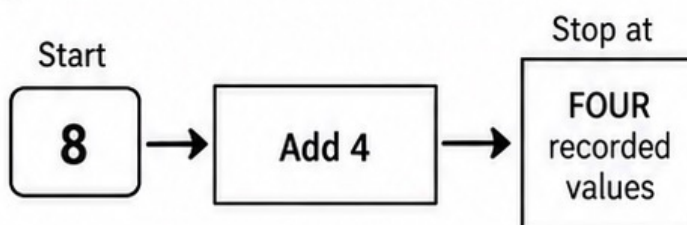
5.



Recorded values: _____

Target count reached? Yes ☐ No ☐

6.



Recorded values: _____

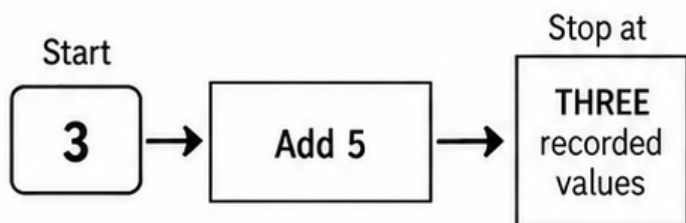
Target count reached? Yes ☐ No ☐

Name: **ANSWERS**

Trace the number machines — core practice

Record the start first. Repeat the action only while the answer to the count check is NO. Stop at YES.

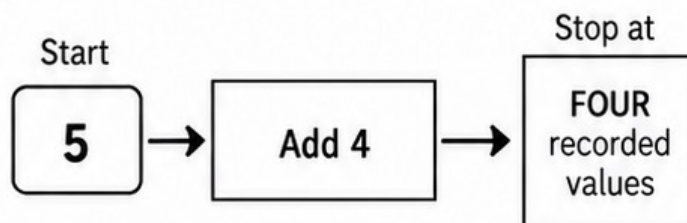
1.



Recorded values: **3, 8, 13**

Target count reached? Yes ☒ No ☐

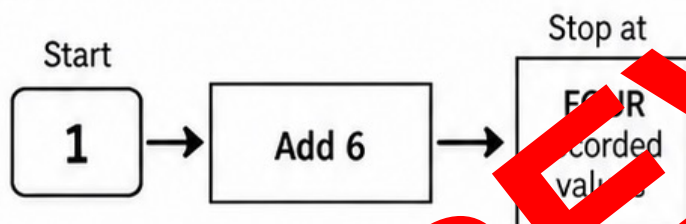
2.



Recorded values: **5, 9, 13, 17**

Target count reached? Yes ☒ No ☐

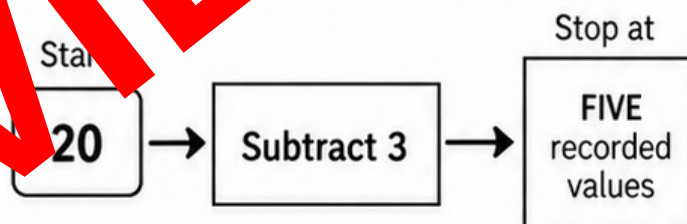
3.



Recorded values: **1, 7, 13, 19**

Target count reached? Yes ☒ No ☐

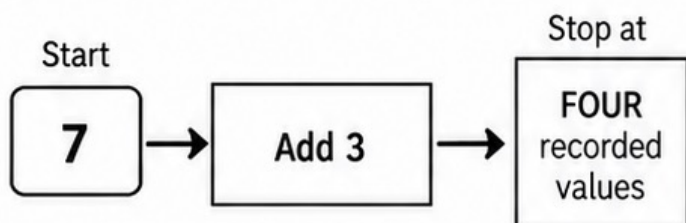
4.



Recorded values: **20, 17, 14, 11, 8**

Target count reached? Yes ☒ No ☐

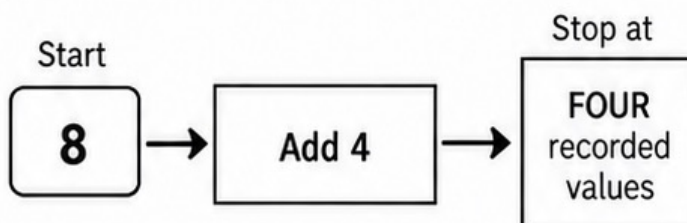
5.



Recorded values: **7, 10, 13, 16**

Target count reached? Yes ☒ No ☐

6.



Recorded values: **8, 12, 16, 20**

Target count reached? Yes ☒ No ☐

Name: _____

Trace, repair and explain

Record the start. Ask whether the target number of values has been recorded.
YES: stop. NO: do the action, record, and check again.

1. Start 11. Add 3. Stop when FOUR values have been recorded.

Values (four): _____

Why stop here?

2. Start 18. Subtract 4. Stop when FOUR values have been recorded.

Values (four): _____

Why stop here?

3. Start 6. Add 2 until done.

What information is missing? Rewrite it so exactly FOUR values are recorded.
Trace your repaired rule and explain the final YES decision.

Name: ANSWERS

Trace, repair and explain

Record the start. Ask whether the target number of values has been recorded.
YES: stop. NO: do the action, record, and check again.

1. Start 11. Add 3. Stop when FOUR values have been recorded.

Values (four): 11 14 17 20

Why stop here?

Four values were recorded; YES, stop.

2. Start 18. Subtract 4. Stop when FOUR values have been recorded.

Values (four): 18 14 10 6

Why stop here?

Four values were recorded; YES, stop.

3. Start 6. Add 2 until done.

What information is missing? Rewrite it so exactly FOUR values are recorded.
Trace your repaired rule and explain the final YES decision.

Missing: a stopping count. Record 6.

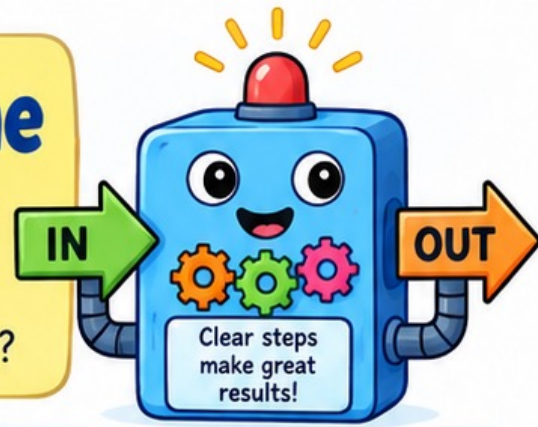
Have four values been recorded? YES: stop. NO: add 2, record, check again.

Trace: 6, 8, 10, 12. Stop at four records.

Repair the Number Machine

— partner game —

Some number machines are not working properly!
Can you fix the instructions so they are clear and correct?



Equipment



Challenge cards
(pages 2 and 3)
12 cards



Pencils



Counters

How to Play

- 1 Partner A reads one challenge card.
- 2 Partner B identifies the missing or confusing instruction.
- 3 Partner B rewrites a precise start, action, record timing and YES/No repeat count decision.
- 4 Both trace it to test the instructions.
- 5 Swap roles and choose a new card.

Worked Turn Example

1. Vague card (read by Partner A)

Add 2
until done.

This instruction is not clear enough.

2. Identify the problem (Partner B)

- What do we start with?
- How many values should be recorded?
- When do we stop?
- What do we do each time?

3. Repaired instructions (Partner B)

Record 4.
Have four values been recorded?
YES: stop.
NO: add 2, record, check again.

4. Trace to test (Both partners)

Records:

4	6	8	10
---	---	---	----

Both partners follow the repaired instructions. We get the same records, so it works!

Scoring



You get **1 point only** if the repaired rule can be followed by another learner and they get the same records.

Clear instructions help everyone succeed!

Finish the Game



- Work through all 12 challenge cards (from pages 2 and 3).
- Each partner then explains one of their repairs to another pair or to the class.
- Did your instructions make the machine work? Well done!

Tally Your Points

Partner	Tally	Total
Partner A		
Partner B		



Great mathematicians check, explain and make their thinking clear!

Repair cards 1–6

Cut out the cards. Work with a partner to find and fix the flaw in each set of steps.

1

Start ____.
Add 3.
Record four values.

Find the flaw. Rewrite. Trace to test.

2

Start 4.
Add 2.
Stop at four.

Find the flaw. Rewrite. Trace to test.

3

Record 4.
Add 3 five times.
Stop after five records.

Find the flaw. Rewrite. Trace to test.

4

Record 8.
Add 2.
Stop when done.

Find the flaw. Rewrite. Trace to test.

5

Record 5.
Add 4.
Stop at 18.

Find the flaw. Rewrite. Trace to test.

6

Add 3.
Record 2.
Repeat until four.

Find the flaw. Rewrite. Trace to test.

Repair cards 7–12

Cut out the cards. Work with a partner.

7



Start at a number.
Add 3.
Record four.

Find the flaw. Rewrite. Trace to test.

8



Record 7.
Add 2.
Keep going.

Find the flaw. Rewrite. Trace to test.

9



Record 3.
Have four?
YES: stop.

Find the flaw. Rewrite. Trace to test.

10



Record 3.
Have four?
NO: add 2.

Find the flaw. Rewrite. Trace to test.

11



Start 4.
Write five numbers
after the start.

Find the flaw. Rewrite. Trace to test.

12



Record 6.
Add 2.
After stop, record
the next value.

Find the flaw. Rewrite. Trace to test.

PREVIEW

Write and test a clear rule — rehearsal 1

Start at 8. Add 4.
Stop after FOUR recorded values.

1. Write the exact ordered instructions for this number machine.

Be clear about when to record the start. Write your steps below.

1. _____
2. _____
3. _____
4. _____
5. _____

2. Write the question that checks the record count and the two possible paths.

Fill in the question and what to do for each answer.

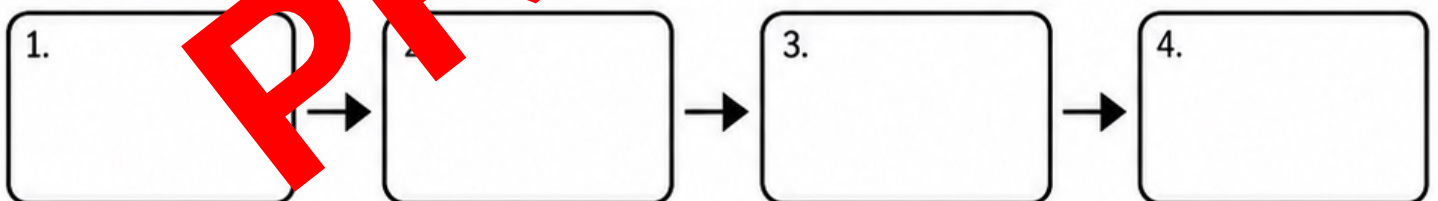
Question: _____ ?

YES: _____

NO: _____

3. Trace the steps.

Start at 8 and follow your rule. Write each recorded value in the boxes.



4. Explain and test.

Explain why the machine stops after the fourth recorded value.

Ask a partner to test your machine. What did they find?

Clear steps. Correct record count. Well done!

Write and test a clear rule — rehearsal 1

Start at 8. Add 4.
Stop after FOUR recorded values.

1. Write the exact ordered instructions for this number machine.

Be clear about when to record the start. Write your steps below.

1. **Record 8.**
2. **Ask: Have four values been recorded?**
3. **YES: stop.**
4. **NO: add 4, record, check again.**
5. _____

2. Write the question that checks the record count and the two possible paths.

Fill in the question and what to do for each answer.

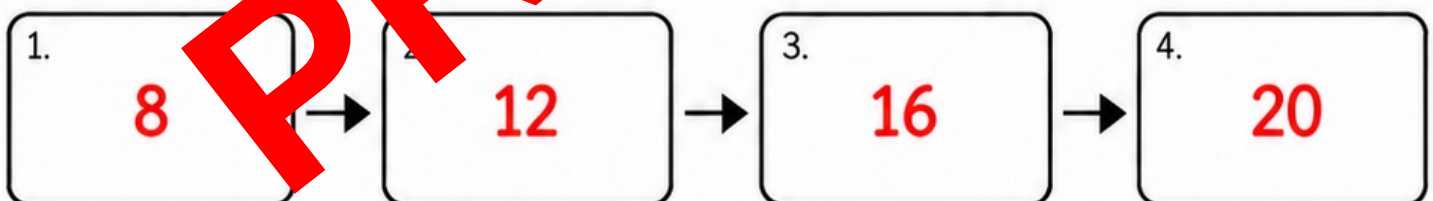
Question: **Have four values been recorded?** ?

YES: **Stop.**

NO: **Add 4, record, check again.**

3. Trace the steps.

Start at 8 and follow your rule. Write each recorded value in the boxes.



4. Explain and test.

Explain why the machine stops after the fourth recorded value.

The fourth record makes the count four, so YES: stop.

Ask a partner to test your machine. What did they find?

A partner obtains 8, 12, 16, 20.

NAME: _____

Repair and transfer – rehearsal 2

Use the number machines. Read carefully. Show your thinking clearly.

- ① Look at the number machine and the claim.

**'Record 3 first. Add 5 four times.
That gives four recorded values.'**

- a) What is wrong with the claim?

- b) Trace the records and rewrite the stop instruction so exactly four values are recorded.

1	2	3	4	Stop instruction:

- ② A new number machine.

Record 14 first, then subtract 2 until **FOUR** values have been recorded.

- a) Write a programme for this number machine. Use these headings.

Start: _____
Action: _____
Record: _____
Count: _____
YES – stop: _____
NO – repeat: _____

- b) Trace the four recorded values.

1	2	3	4

- c) How is this task different from Task 1?

NAME: ANSWERS

Repair and transfer – rehearsal 2

Use the number machines. Read carefully. Show your thinking clearly.

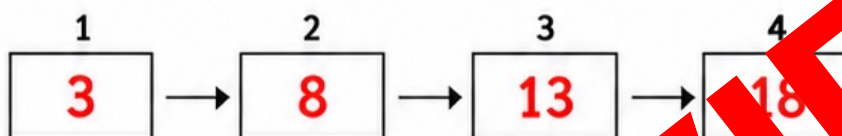
- ① Look at the number machine and the claim.

‘Record 3 first. Add 5 four times.
That gives four recorded values.’

- a) What is wrong with the claim?

**Recording 3 first, then adding 5 four times, gives FIVE records:
3, 8, 13, 18, 23.**

- b) Trace the records and rewrite the stop instruction so exactly four values are recorded.



Stop instruction:
**Stop when FOUR values have been
recorded. YES: stop; NO: add 5,
record, check again.**

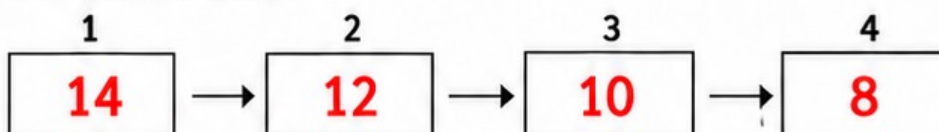
- ② A new number machine.

Record 14 first, then subtract 2 until **FOUR** values have been recorded.

- a) Write a program for this number machine. Use these headings.

Start: **14**
Action: **subtract 2**
Record: **start and each result**
Count: **four**
YES — stop: **stop when FOUR values have been recorded.**
NO — repeat: **subtract 2, record, check again.**

- b) Trace the four recorded values.



- c) How is this task different from Task 1?

Task 1 adds 5 and repairs a false count; Task 2 subtracts 2 from 14.

Name: _____

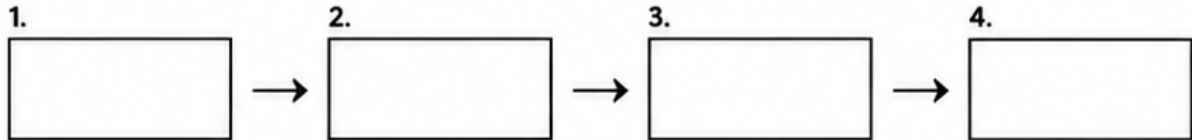
R6

Independent assessment — number machines

Follow the instructions for each task. Show your working in the spaces provided.

A. Trace: Start 7. Add 4. Stop after FOUR recorded values.

Record the numbers in the boxes in order.



What is the final YES decision? _____

B. Trace: Start 20. Subtract 3. Stop after FIVE recorded values.

Record the numbers in the boxes in order.



What is the final YES decision? _____

C. Write a new number-machine rule for another student.

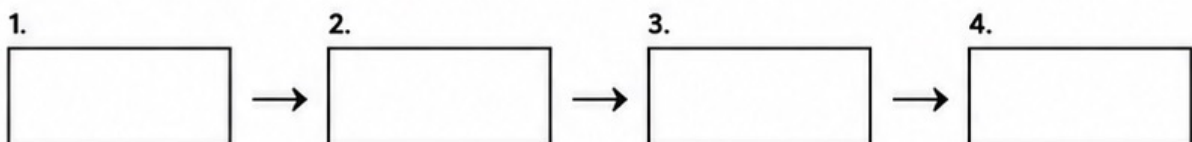
Start at 6. Choose EITHER add 2 OR add 5. Stop after FOUR recorded values.

State when to record the count question, YES-stop and NO-repeat paths.

Test your own rule and explain the pattern.

My rule (steps):

Trace (record the numbers):



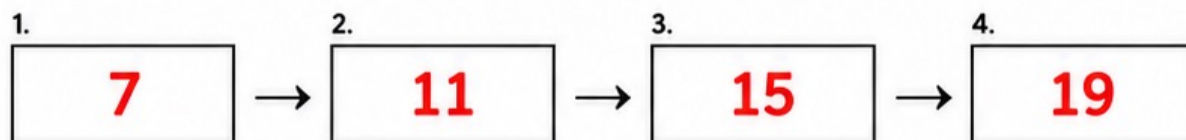
Explanation of the pattern:

Independent assessment — number machines

Follow the instructions for each task. Show your working in the spaces provided.

A. Trace: Start 7. Add 4. Stop after FOUR recorded values.

Record the numbers in the boxes in order.

What is the final YES decision? YES: four values recorded, stop.**B. Trace: Start 20. Subtract 3. Stop after FIVE recorded values.**

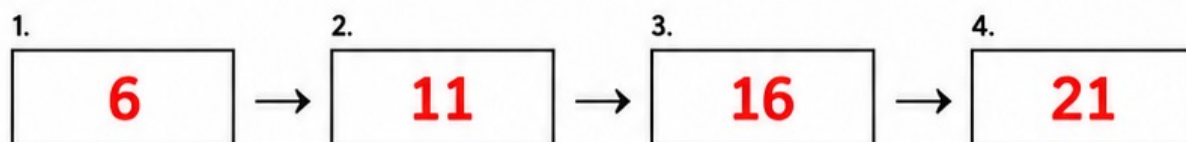
Record the numbers in the boxes in order.

What is the final YES decision? YES: five values recorded, stop.**C. Write a new number-machine rule for another student.**

Start at 6. Choose EITHER add 2 or add 5. Stop after FOUR recorded values.

State when to record the count question, YES-stop and NO-repeat paths.

Test your own rule and explain the pattern.

My rule (step 1):Record 6. Have four values been recorded?YES: stop. NO: add 5, record, check again.**Trace** (record the numbers):**Explanation of the pattern:**Each new value is 5 more. The start is record 1. Stop at record 4.An add-2 rule is also valid if clear and correctly tested.

Name: _____

R7 Number-machine learning evidence rubric

	Needs teaching	Developing with support	Target met independently
Concept / accuracy	Miscounts records or confuses additions with values	Correct on a familiar trace with a prompt	Correctly applies the record-count rule to a new case
Application / procedure	Cannot trace a complete finite rule yet	Traces with a model or prompts	Traces two rules and writes a third another learner can follow
Reason / evidence	Guesses without a reason	Gives a relevant detail with prompting	Explains the stop decision using the actual recorded count
Transfer / communication	Rule is unclear or cannot transfer	Rule is not stated with support	Communicates a clear rule and tests it in a fresh case

Evidence observed:

Next teaching step:

Number Machines with Clear Steps

PREVIEW



Our number-machine goal

Follow ordered steps and record every value, starting with the input.

Use a YES/NO count decision to stop at the exact number of steps.

Entry check: What is $4 + 3$? Which comes next: record 4 or add 3?



Words that make the rule clear

Input: the starting number. Step: one action, such as add.

Output: a recorded value. Repeat: do the action again.

Decision: have enough values been recorded? Yes: stop. No: repeat.



The five-record model

Record 4 as value 1. Ask: Have five values been recorded?
YES → stop. NO → add 3, record the result, then check again.
Records: 4, 7, 10, 13, 16. The start is included in the count.



Trace every intermediate value

Record 1: 4. Count check: NO. Add 3.

Record 2: 7. Count check: NO. Add 3.

Record 3: 10. Count check: NO. Add 3.

Record 4: 13. Count check: NO. Add 3.

Record 5: 16. Count check: YES. stop.



A similar phrase, a different result

“Record five values” gives 4, 7, 10, 13, 16.

“Record 4, then add 3 five times” gives 4, 7, 10, 13, 16,

Five additions after the start make six records.



Pause and trace together

Start at 2. Record it. Add 4 until FOUR values have been recorded.

Write the first three records. Is the count decision YES yet?

What should happen after the fourth record?



Guided answer and reason

The records are 2, 6, 10, 14.

At counts 1, 2 and 3 the answer is NO: add 4 and record again.

At count 4 the answer is YES: stop. The sum is record 1.



A new action, the same count rule

Start 9. Record it. Subtract 2 until FOUR values are recorded.
9, 7, 5, 3. Check after every record.

The action changed; the record count decision did not.



Repair-game model turn

Vague card: "Add 2 until done." What is missing?

Repair: Record 4. Have four values been recorded?

YES: stop. NO: add 2, record, check again.

Test: 4, 6, 8, 10. A partner should get the same.



Your turn: explain the flow

Card: "Start at 5. Add 4. Stop at 17."

Would everyone know when and what to record?

Rewrite a complete rule with a record-constant decision and test it.



A list alone is not an algorithm

Missing-number task: 4, 7, __, 13, __.

Filling the gaps shows a pattern, but it gives no order, no steps, or stop decision.

Repair it: record 4; ask if five values exist; NO: record 3 and record; YES: stop.



Transfer to a fresh case

Start 8. Add 4. Record FOUR values.

Write start $\rightarrow$ count question $\rightarrow$ YES/NO paths $\rightarrow$ place.

Test your rule with a partner: both should obtain 8, 12, and 20.



Choose the route you need

Support: use step cards and a trace with the first count already shown.

Core: write and test the complete finite number machine rule

Extension: change only the target record count and predict what changes.



Independent assessment

Trace two given number machines without a near answer model.

Write a third rule that another learner can follow and big push.

Show recorded values, YES/NO steps, path and reason and pattern finding.



Check your own evidence

Did you record the starting number as value 1?

Did you ask the count question after every record?

Can another student follow your exact route and get the same values?

What one step will you clarify next time?



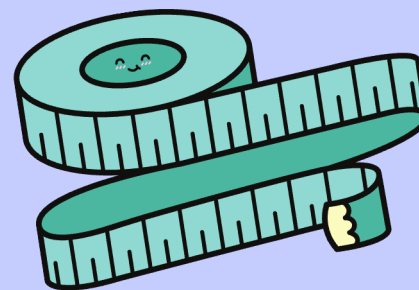
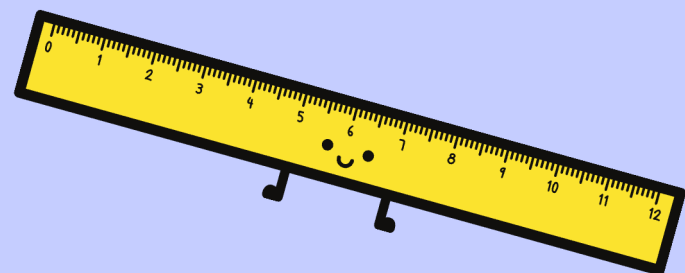
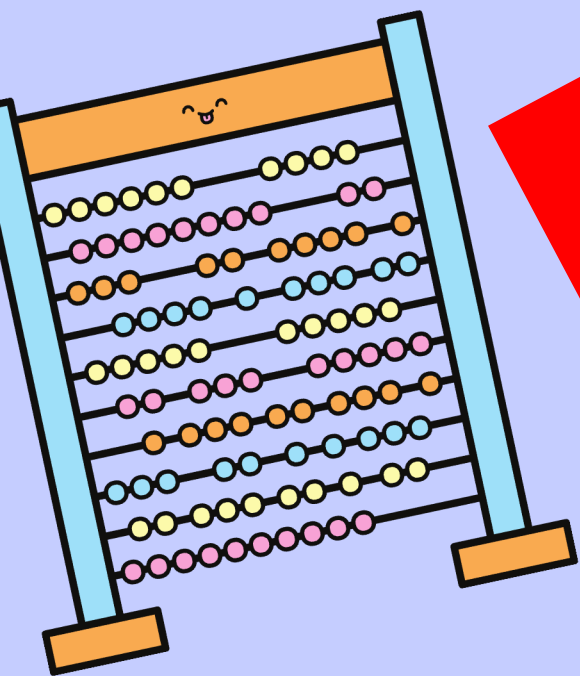
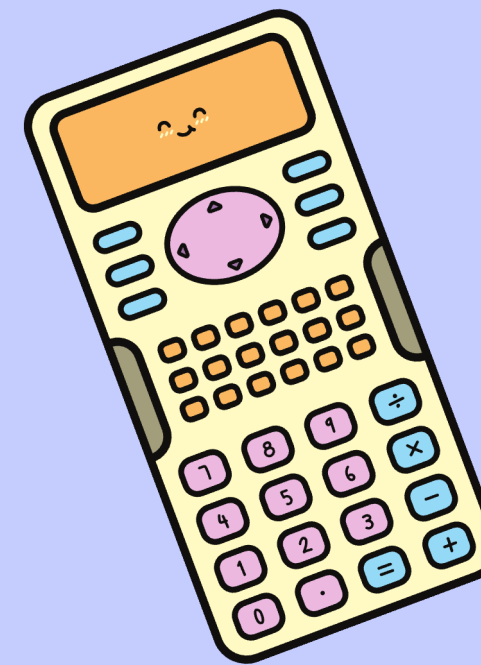
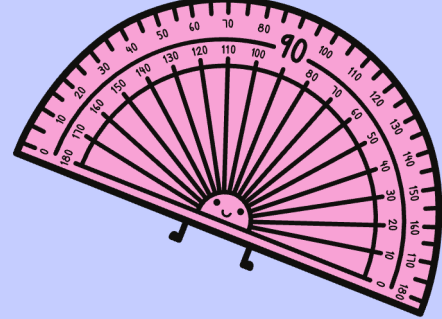
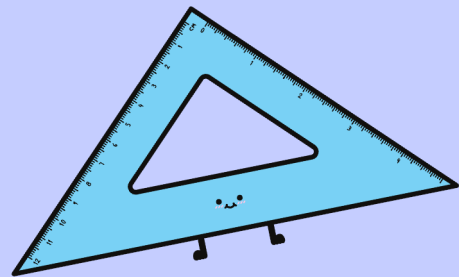
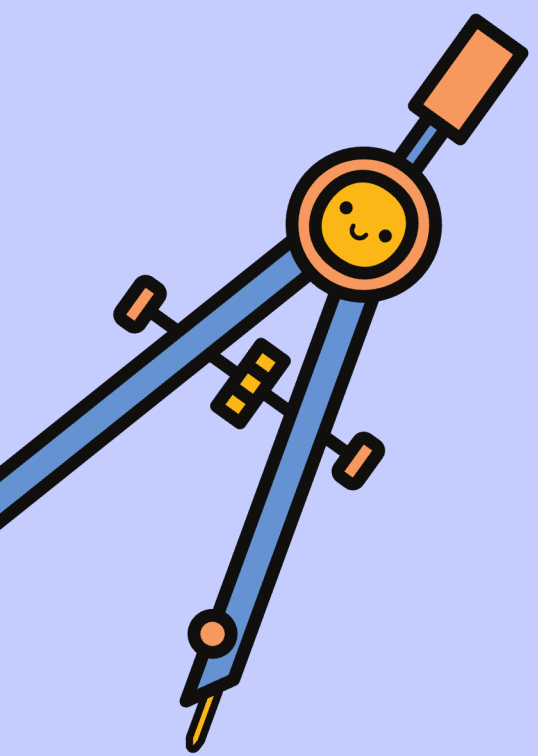
What makes the machine precise?

A fixed start, ordered action, exact record timing and a correct decision.

NO repeats the action and records another value. YES stop

That makes the number pattern fixed and reproducible





PREVIEW

Well Done!

Number Machines with Clear Steps Quiz

PREVIEW



Question 1

What is the fifth recorded value when we record 4, then until five values are recorded?

PREVIEW



Answer 1

16. The records are 4, 7, 10, 13, 16; the start is record

PREVIEW



Question 2

Does “record five values” mean add 3 five times after recording 4?

PREVIEW



Answer 2

No. Five additions after the start give SIX records. Stop at the fifth recorded value.

PREVIEW



Question 3

What exactly does the YES/NO stop decision test?

PREVIEW



Answer 3

It tests how many values have been recorded, including the current. YES at the target count means stop.



Question 4

Start 6. Add 2. Stop after FOUR recorded values. Write even record.

PREVIEW



Answer 4

6, 8, 10, 12. Check count after each record; stop at 1 record.

PREVIEW



Question 5

Now change only the previous stop count to FIVE. What happens?

PREVIEW



Answer 5

The first four records stay 6, 8, 10, 12; one more addition makes 14. Stop at five records.



Question 6

A learner writes only “4, 7, __, 13, __”. Why is this not a complete algorithm?

PREVIEW



Answer 6

It lacks ordered action and YES/NO stopping steps. Step 4; while count < 5, add 3 and record; at count 5 stop.



Question 7

Repair this challenge card: "Add 2 until done."

PREVIEW



Answer 7

Name a start and target count: record 4; ask if four value, YES stop, NO add 2, record and check again. Trace 4, 6, 8, 10



Question 8

Compare 2, 6, 10, 14 and 9, 7, 5, 3. Give one similarity and one difference.

PREVIEW



Answer 8

Both have four records and stop at count 4. The first adds 1 each time; the second subtracts 2.



Question 9

Start 7. Add 3. Stop after FOUR recorded values. What is the sum.

PREVIEW



Answer 9

7, 10, 13, 16. The start counts, so three additions produce the records.

PREVIEW



Question 10

What evidence supports your answer to Question

PREVIEW



Answer 10

Each new value is 3 more than the previous one: and 16 is not one of the four recorded values, so YES: stop.



Question 11

A student claims “five values means five additions.” Give one counterexample.

PREVIEW



Answer II

Record 4, then add 3 five times: 4, 7, 10, 13, 16, 19. That is 6 records, not 10.

PREVIEW



Question 12

Starting at 3, adding 5, write a clear rule that stops after 10 records.

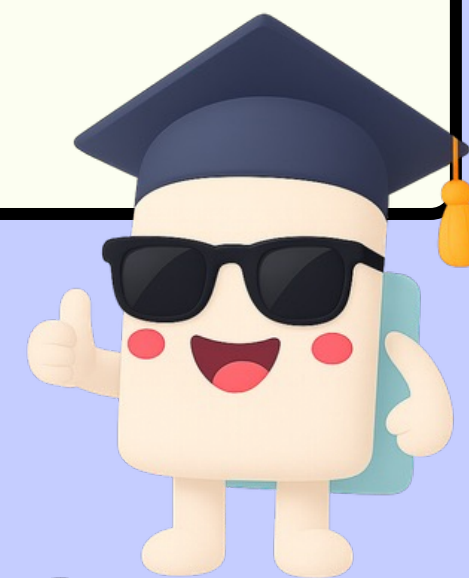
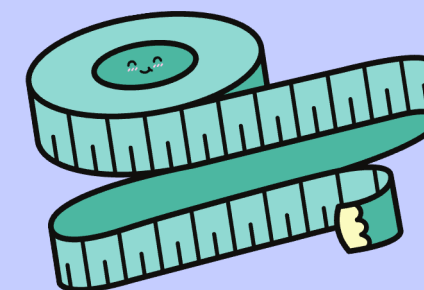
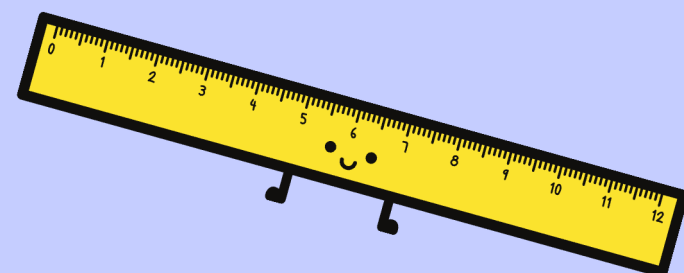
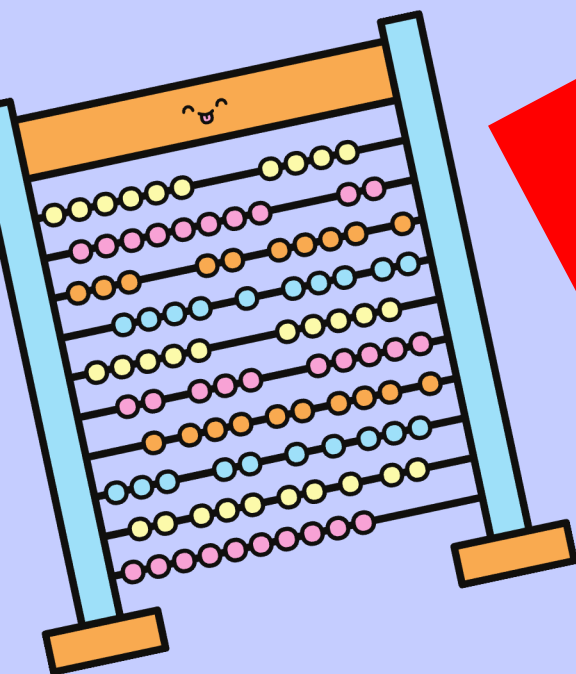
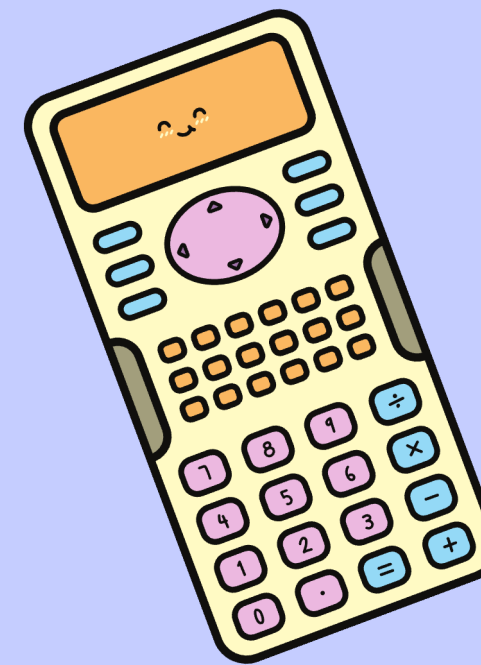
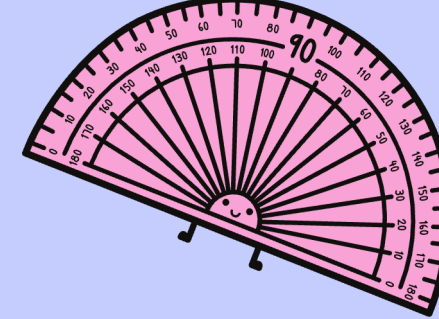
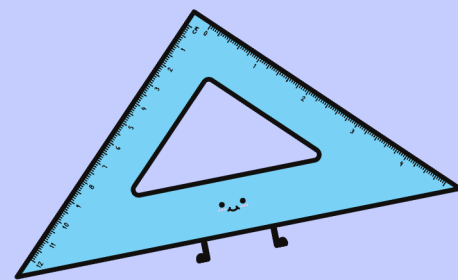
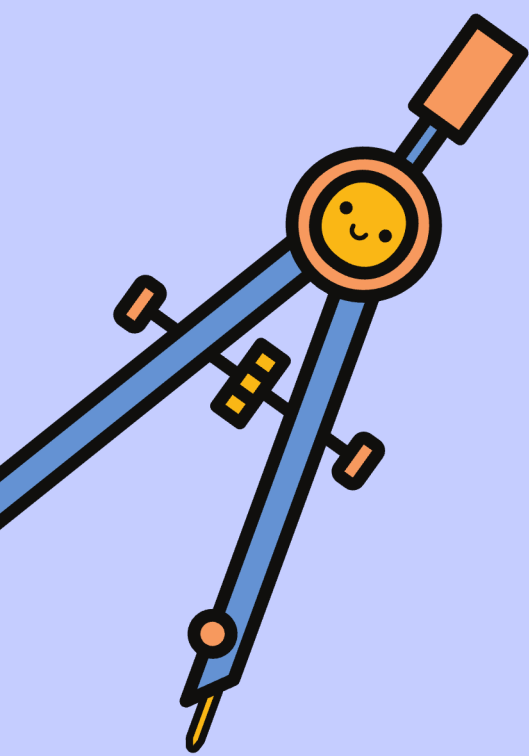
PREVIEW



Answer 12

Sample: Record 3. Have three values been recorded? YES: stop. NO: add 5, record, check again. Trace: 3, 8, 13. Equivalent precise record is found.





PREVIEW

Quiz Complete!