Guided Work Book on Past Papers

With Answers Separate...

And Related Questions for Additional Practice

DEEP DIVE for GRADES 5 & 6

UNDERSTANDING GRADE 5-6 MATH QUESTIONS

NGSA MOCK Prep

Beyond Finding Answers

UNDERSTAND | CATCH ERRORS | SOLVE | REFLECT

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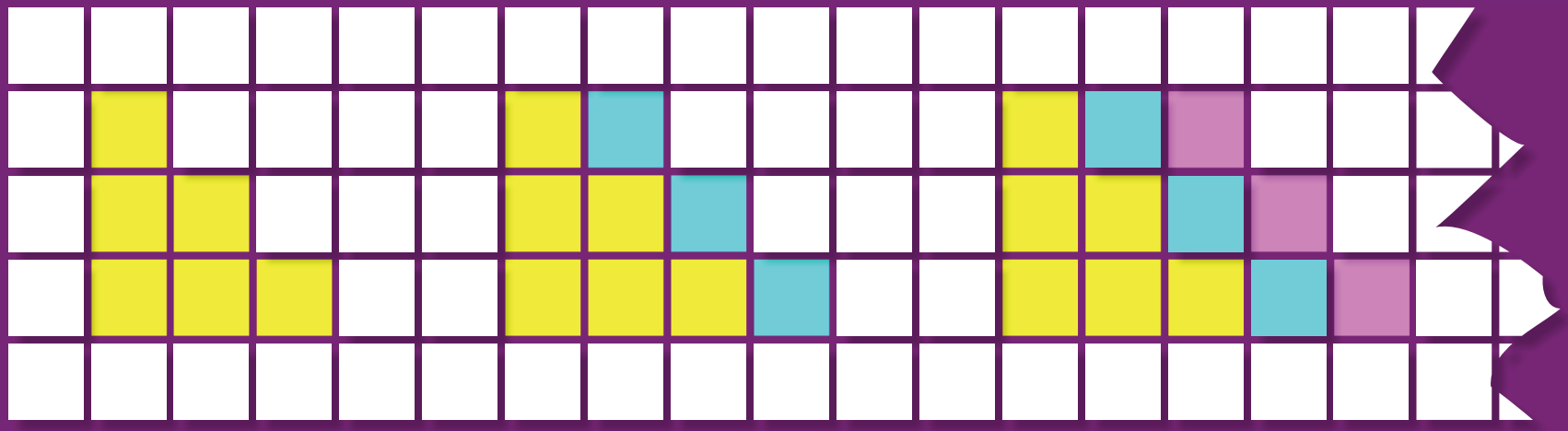
Teacher Rishica & Keith David

Question 1 June 2024 Mock Grade 5

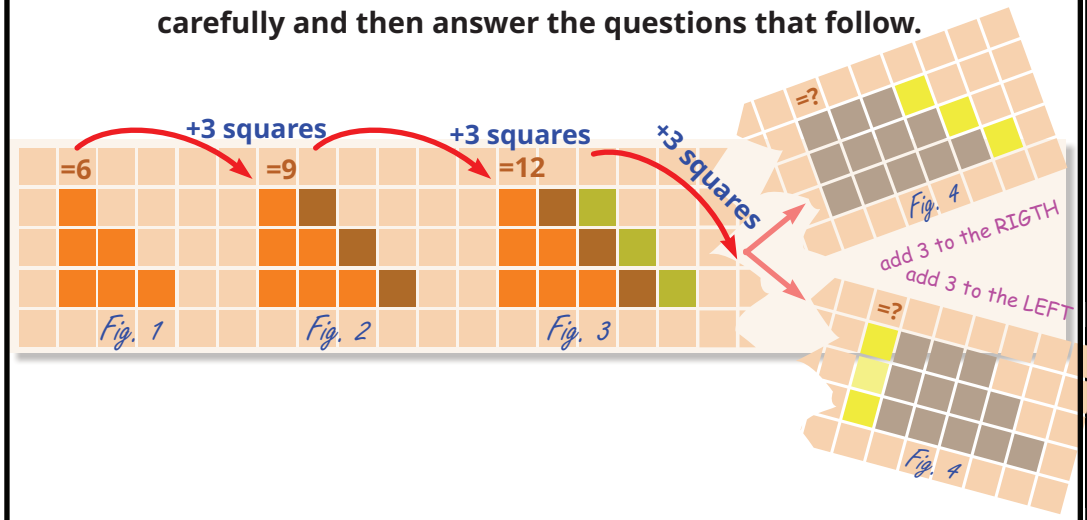
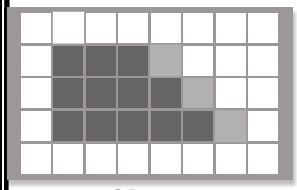
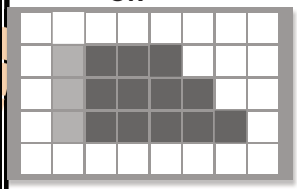
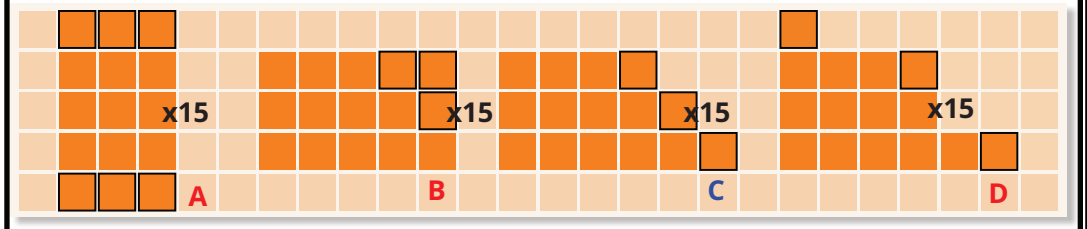
Squares are arranged to form the pattern below. Study it carefully and then answer the questions that follow.

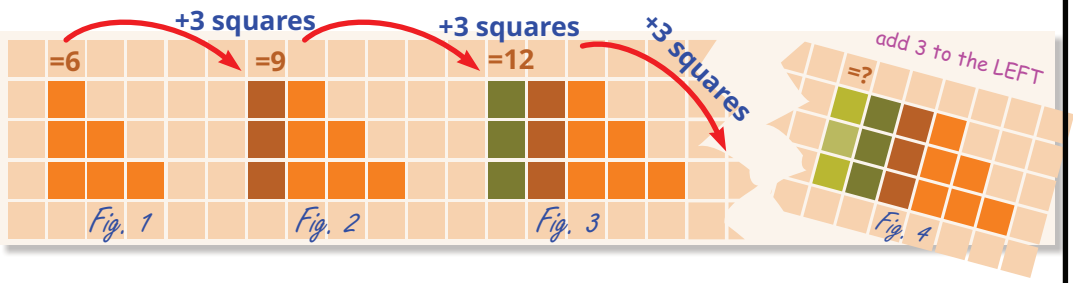
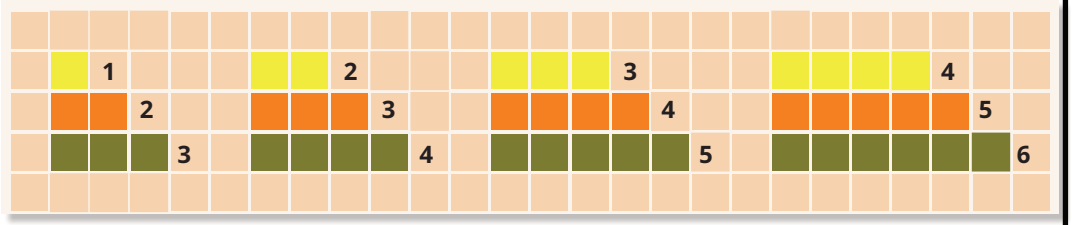


(i) Draw the Figure 4 of the pattern.

(ii) Which figure will have 21 squares?

(iii) How many squares will Figure 7 have?

NO.	TEST ITEMS (What you should be reading carefully)	Working Column (Show your detailed working clearly)	What You Should Be Thinking
A 1.	**Squares are arranged to form the pattern below. Study it carefully and then answer the questions that follow.**  	A **1 (a) (i)** *all of fig·3 plus 3 more squares*  **OR** 	**QUESTION STATEMENT** 1. They are telling me that there is A PATTERN. 2. Squares are arranged to make a pattern 3. What really is the pattern. 4. How is the pattern expanding, growing or changing from fig.1 to the next? 5. How many squares make the first pattern 6. how many squares make the second pattern, etc 7. how many squares make the third pattern 8. Is there a trend in the number of squares added or removed to make a new pattern. 9. What equation OR rule or law did I learn about patterns? **QUESTION 1** 10. They are asking me to DRAW the Pattern for Fig.4 11. How many squares do I add to fig.3 to make fig.4 12. Where (to the right OR left) and how to add the square to maintain the pattern… **QUESTION 2** 13. this is the perfect time to implement the pattern rule/equation OR maybe I can continue the table I did for question 1 and see what numbers pop up for fig.5 and fig.6 **QUESTION 3** 14. repeat process used to answer Question 2 to find answer here.
(a)	(i) **Draw the Figure 4 of the pattern.**  	(ii) *Fig·1 6 squares* *Fig·2 9 squares* *Fig·3 12 squares* *every consecutive Fig· seems to be increasing by 3 squares, therefore 12+3=* *Fig·4 15 squares*	
	(ii) **Which figure will have 21 squares?**	(iii) *Lets continue as before* *Fig·5 18 squares* *Fig·6 21 squares*	
	(iii) **How many squares will Figure 7 have?**		

NO.	TEST ITEMS (What you should be reading carefully)	Working Column (Show your detailed working clearly)	What You Should Be Thinking
B	**Squares are arranged to form the pattern below. Study it carefully and then answer the questions that follow.**  **(i) Draw the Figure 4 of the pattern.**  **(ii) Which figure will have 21 squares?** --- **(iii) How many squares will Figure 7 have?**	B **1 (a) (iii)** *Alternatively, I will use the arithmetic formula, this is best for large or distant series. Figures that are far from the last fig given e.g. finding number of square in fig 7, fig 19 or fig 42.* *FORMULA (difference observed between Fig.1, Fig.2, Fig.3, etc) X (Fig. unknown) + (number of blocks Fig.0 would have)* *3 X 7 + 3 =* *Fig.7 24 squares* *Alternatively, What if they had asked what's the difference between Fig.19 and Fig.21?*	**ANOTHER PERSPECTIVE** 1. In the first instance we looked at adding the three squares at the right end, but I can add the same three squares at the LEFT end and get the EXACT results 2. Weather we add to the LEFT or RIGHT, we can see that the pattern is ALSO consecutive and increase by 1 for each layer as we move from fig.1 to fig.2, etc 3. In fig.1 three consecutive numbers add to 6, then 3 consecutive numbers add to 9, then three consecutive numbers add to 12, etc 4. What equation OR rule or law did I learn about consecutive numbers and a given total? **QUESTION 1** 5. Do I use consecutive number rule or just the consecutive number flow from row 1 to row 3 **QUESTION 2** 6. following the flow of consecutive numbers and a total… **QUESTION 3** 7. Use some logic here about how the consecutive numbers flow for fig.1,fig.2, fig.3, etc

No Guess Work, **CALCULATE**

One Block

Pattern 1

Five Blocks

Pattern 2

Pattern 3

Nine Blocks

?

Pattern 4

Unknown amount of Blocks

(a) How many squares will be used in pattern 4?

1 (+4) 5 (+4) 9 (+4) 13

Answer: 13 Squares in Pattern 4

(b) Find an expression, in terms of n, for the number of squares in the n^{th} pattern.

Since the Pattern increases by 4

Skip Count by 4s

4 8 12 16

↓-3 ↓-3 ↓-3 ↓-3

1 (+4) 5 (+4) 9 (+4) 13

The nth pattern is any unknown pattern down the line OR ahead

$4n - 3$

Use the formula to find how many squares would be in Pattern 10 & 14

If a Sequence has 77 Blocks, would it be Pattern 19, 20, 21, or 32?

Pattern 1

Pattern 2

Pattern 3

One of the patterns in the sequence uses 72 white circles.

Work out how many grey circles will it use.

White circles

$2n + 2 = 72$

$2n = 70$

$n = 35$

Grey circles

$3n$

What is the Answer, How many GREY Circles?