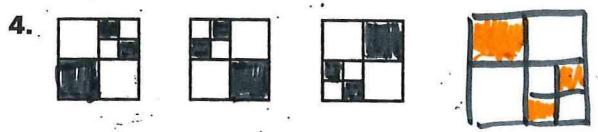


LESSON 2.1 Practice
For use with pages 72-78

Sketch the next figure in the pattern.



Describe a pattern in the numbers. Write the next number in the pattern.

~~Graph the pattern on a number line.~~

5. 113, 224, 335, 446, ... **557** *add 111 to each term*

+111 +111

6. 4, 6, 9, 13, 18, ... **24** *adding consecutive numbers starting with 2*

+2 +3 +4 +5 +6

7. $\frac{1}{3}, \frac{3}{4}, \frac{5}{5}, \frac{7}{6}, \dots$ **$\frac{9}{7}$** *add 2 to numerator, add 1 to denominator*

+2 +1 +2 +1

8. $\frac{7}{8}, \frac{6}{7}, \frac{5}{6}, \frac{4}{5}, \dots$ **$\frac{3}{4}$** *subtract 1 from the numerator and denominator*

-1 -1 -1 -1

9. 3, 0, -3, -6, ... **-9** *subtract 3 from each term*

-3 -3 -3

10. 1, 4, 9, 16, ... **25** *add consecutive odd numbers or square 1, 2, 3, ...*

+3 +5 +7 +9

11. 2, 5, 11, 23, ... **47** *double the number and add to the next term*

+3 +6 +12 +24

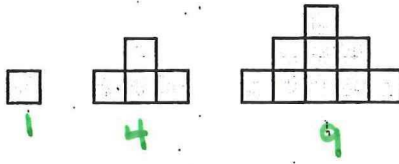
12. 2, 3, 5, 7, 11, ... **13** *prime numbers*

LESSON
2.1

Practice *continued*
For use with pages 72-78

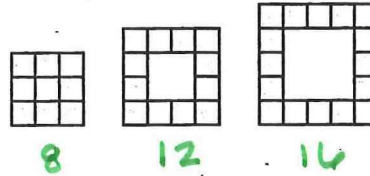
The first three objects in a pattern are shown. How many squares are in the next object?

13.



16

14.



20

Show the conjecture is false by finding a counterexample.

15. The quotient of two whole numbers is a whole number.

$$\div \quad \frac{7}{2} = 3.5 \quad \frac{1}{2}$$

16. The difference of the absolute value of two numbers is positive, meaning

$$|a| - |b| > 0.$$

$$\begin{aligned} |3| - |4| &> 0 \\ 3 - 4 &> 0 \\ -1 &> 0 \end{aligned}$$

$$a=3 \quad b=4$$

$$|a-b| > 0$$

No counterexample

17. If $m \neq -1$, then $\frac{m}{m+1} < 1$.

$$\begin{aligned} m = -6 \quad \frac{-6}{-6+1} &< 1 \quad \frac{6}{5} < 1 \\ \frac{-6}{5} &< 1 \end{aligned}$$

18. The square root of a number x is always less than x .

$$\begin{aligned} \sqrt{x} &< x \\ \sqrt{1} &< 1 \\ 1 &< 1 \end{aligned}$$

$$\begin{aligned} \sqrt{4} &< 4 \quad \text{not a counterexample} \\ 2 &< 4 \quad \checkmark \end{aligned}$$

X=1

LESSON
2.1

Practice *continued*
For use with pages 72-78

Write a function rule relating x and y .

19.

x	1	2	3
y	1	8	27

$y = x^3$

21.

x	1	2	3
y	4	3	2

$m = \frac{-1}{1} = -1$

$y = mx + b$
 $(1, 4)$
 $m = -1$

$4 = -1(1) + b$
 $4 = -1 + b$
 $5 = b$

$y = -x + 5$

20.

x	1	2	3
y	-5	-3	-1

$y = mx + b$

$\frac{\Delta y}{\Delta x} = \frac{2}{1}$
slope m

$(3, -1)$
 $-1 = 2(3) + b$
 $-1 = 6 + b$
 $-7 = b$

$y = 2x - 7$

22.

x	1	2	4
y	1	0.5	0.25

$\frac{1}{2}$ $\frac{1}{4}$

$y = \frac{1}{x}$

23. **Bacteria Growth** Suppose you are studying bacteria in biology class. The table shows the number of bacteria after n doubling periods. Your teacher asks you to predict the number of bacteria after 7 doubling periods. What would your prediction be?

n (periods)	0	1	2	3	4	5
billions of bacteria	4	8	16	32	64	128

24. **Chemistry** The half-life of an isotope is the amount of time it takes for half of the isotope to decay. Suppose you begin with 25 grams of Platinum-191, which has a half-life of 3 days. How many days will it take before there is less than 1 gram of the isotope?