## TIMSS GRADE8 MATHEMATICS Practice paper 3

What does xy + 1 mean?
A. Add 1 to y, then multiply by x.
C. Add x to y, then add 1.

B. Multiply *x* and *y* by 1.D. Multiply *x* by *y*, then add 1

2. Pat has red tiles and black tiles. Pat uses the tiles to make square shapes. The 3 × 3 shape has The 4 × 4 shape has 4 black



tiles and 12 red tiles.							
F	1	R	R	R			
F	2	в	В	R			
F	2	в	в	R			
F	2	R	R	R			

The table below shows the number of tiles for the first three shapes Pat made. Pat continued making shapes using this pattern. Complete the table for the  $6 \times 6$  and  $7 \times 7$  shapes

Shape	Number of Black Tiles	Number of Red Tiles	Total Number of Tiles
3 × 3	1	8	9
$4 \times 4$	4	12	16
5 × 5	9	16	25
6 × 6	16		
7 × 7	25		

## Use the patterns in the previous table to answer the following questions.

- 3. Pat made a shape with a **total** of 64 tiles. How many were black and how many were red? Answer: \_\_\_\_\_ black tiles \_\_\_\_\_ red tiles
- 4. Pat made a shape that used 49 **black** tiles. How many **red** tiles did Pat use in that shape? Answer: \_\_\_\_\_\_ red tiles

- Next, Pat made a shape using 44 of the red tiles. How many black tiles would Pat need to complete the black part of the shape? Answer: \_\_\_\_\_ black tiles
- 6. Pat wanted to add a line to the table showing how to find the number of tiles needed to make a square of any size. Use the patterns in the table on the opposite page to help you complete the line for shape  $n \times n$  in the table below.

Shape	Number of Black Tiles	Number of Red Tiles	Total Number of Tiles	
$n \times n$	$(n-2)^2$			

7. What is the area of this rectangle?



- 8. Which expression is equivalent to 4(3 + x)A. 12 + x B. 7 + x C. 12 + 4x D. 12x
- 9. a + b = 25. What is the value of 2a + 2b + 4Answer:\_\_\_\_\_

**Consider the following number pattern:** 

$$\frac{1}{2}$$
,  $\frac{2}{3}$ ,  $\frac{3}{4}$ ,  $\frac{4}{5}$ ,  $\frac{5}{6}$ 

10. What is the next term in this pattern? Answer: \_\_\_\_\_

11. What is the next term in this pattern? Answer: \_\_\_\_\_

12. What would term number *n* be? Answer: \_\_\_\_\_

13.k = 7 and l = 10. What is the value of P if  $P = \frac{3kl}{5}$ . Answer: \_\_\_\_\_

14. Which of these is equal to  $3p^2 + 2p + 2p^2 + p$ ? A. 8p B.  $8p^2$  C.  $5p^2 + 3p$  D.  $7p^2 + p$ 

15. What is the value of y if  $y = \frac{a+b}{c}$  where a = 8, b = 6, and c = 2A. 7 B. 10 C. 11 D. 14