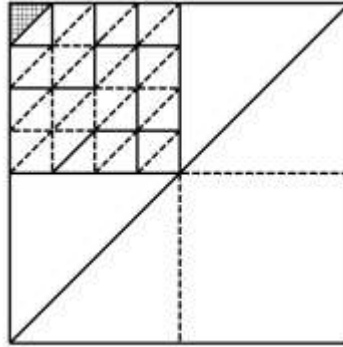


LEVEL 1 CHALLENGE GRADE 4 AND 5 ROUND ONE **ANSWERS**

1. **E** $\frac{1}{2}$ of Figure A is shaded. $\frac{1}{2}$ of Figure B is shaded. $\frac{3}{4}$ of Figure C is shaded.
 $\frac{1}{2}$ of Figure D is shaded. $\frac{1}{4}$ of Figure E is shaded.
2. **C** Since Sally owes Harry R55 and Harry only owes Sally R48, Sally owes Harry R7 more than Harry owes Sally.
3. **E** 10 trees in 3 minutes.
 $10 \times 250 = 2500$ trees in $3 \times 250 = 750$ minutes.
 \therefore 2500 tree in $\frac{750}{60} = 12\frac{1}{2}$ minutes.
4. **C** Monday's temperature = $22^{\circ}\text{C} - 4^{\circ}\text{C} = 18^{\circ}\text{C}$.
Wednesday's temperature = $18^{\circ}\text{C} - 6^{\circ}\text{C} = 12^{\circ}\text{C}$.
5. **E** $\frac{2}{3} \times 12 = \frac{24}{3} = 8$.
 $\frac{1}{2} \times 8 = 4$.
 $\therefore 12 - 4 = 8$ squares remain.
6. **E** $2,1060 - 0,0612 = 2,0448$.
7. **A** $2016 \div 15 = 134$ remainder 5.
 $\therefore (134 \times 15) + 5 = 2016$.

8. **D** $6 \text{ km} = 6000 \text{ m}$.
 The front wheel makes $6000 \div 4 = 1500$ revolutions.
 The back wheel makes $6000 \div 3 = 2000$ revolutions.
 Therefore, the front wheel makes $2000 - 1500 = 500$ less revolutions than the back wheel.

9. **B** $\frac{1}{2} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} = \frac{1}{128}$



10. **A** 60 seconds in a minutes. 60 minutes in an hour. 24 hours in a day. 7 days in a week.
 Therefore, $60 \times 60 \times 24 \times 7$ seconds in a week.

11. **E** SCALE A: $1 \text{ kg} = 1000 \text{ g}$. Each line represents $1000 \div 10 = 100 \text{ g}$.
 Therefore, the weight shown is $4 \times 100 = 400 \text{ g}$.

SCALE B: Each line represents $500 \div 10 = 50 \text{ g}$.
 Therefore, the weight shown is $7 \times 50 = 350 \text{ g}$.

Scale A is then heavier by $400 - 350 = 50 \text{ g}$.

12. **D** Taking a long piece of string, n smaller pieces would result from in $n - 1$ cuts.
 Since there are 16 visible ends there must be 8 pieces.
 As such there has then been $8 - 1 = 7$ cuts.

13. **B** $1 \text{ hour} = 60 \text{ minutes}$.
 $60 - 35 = 25$ minutes remaining.
 $\frac{25}{60} = \frac{5}{12}$ of the time remaining.

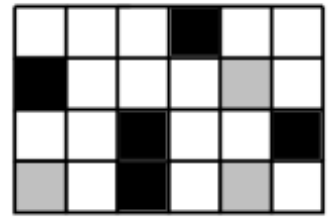
14. A There are $4 \times 6 = 24$ squares.

Shaded squares : Unshaded squares = 1 : 2.

$$\frac{24}{3} = 8 \Rightarrow \text{Shaded squares : Unshaded squares} = 8 : 16.$$

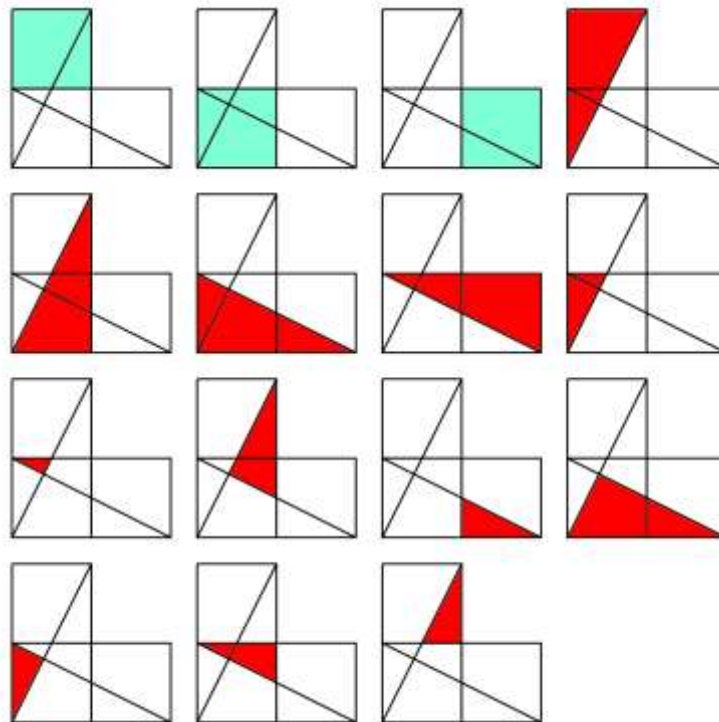
Currently there are 5 shaded squares : 19 unshaded squares.

Therefore, 3 more squares must be shaded.



15. C There are 3 squares and 12 triangles of various sizes.

The maximum amount of points that can be awarded is $(3 \times 3) + (12 \times 2) = 33$.

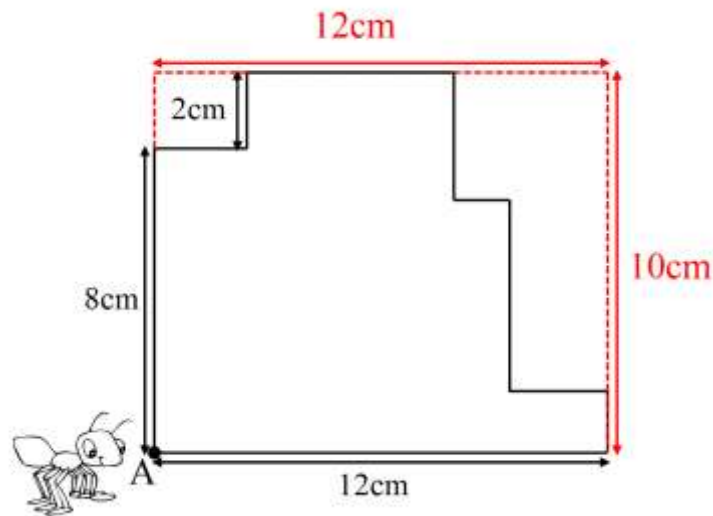


16. D $\frac{87 + 83 + 88}{3} = \frac{258}{3} = 86.$

$$\frac{90 + 258}{4} = \frac{348}{4} = 87.$$

Therefore, her average will increase by 1.

17. **D** If we think of the decagon being a squashed rectangle on certain sides, there is no change in the perimeter. Consequently, the perimeter will be $(12 \times 2) + (10 \times 2) = 24 + 20 = 44$ cm.

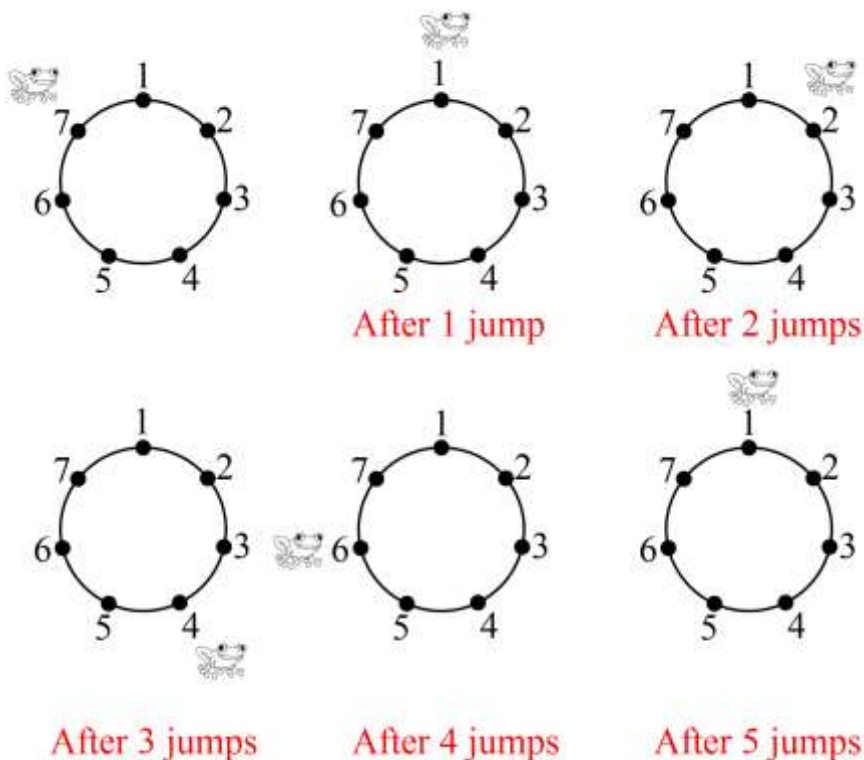


18. **B** Since the rectangular sheet is divided into $0,5 \text{ cm} \times 0,5 \text{ cm}$ squares, the length of 10 cm can be divided into 20 columns. Similarly, the width of 2 cm can be divided into 4 rows.

Therefore, $20 \times 4 = 80$ possible squares can be cut.

19. **B** After 1 jump the frog will be at point 1. After 2 jumps, point 2. After 3 jumps, point 4. After 4 jumps, point 6. After 5 jumps it will be back at point 1 and then the cycle will repeat every 4 jumps.

$2016 - 5 = 2011$ jumps left. The closest multiple of 4 to 2011 is 2008, with three more jumps to go. Therefore, after 2016 jumps, the frog will be at point 6.



20. D Instead of Subtraction, it would be easier to complete the addition below.

$$\begin{array}{r} \\ + \\ \hline \\ \hline \\ \hline \hline \end{array}$$

Since $3 + B$ must end in a 2, then $B = 9$.

$$\begin{array}{r} \\ + \\ \hline \\ \hline \\ \hline \hline \end{array}$$

7 (and the carried 1) $+ 8 = 16$. Therefore, $A = 6$.

$$\begin{array}{r} \\ + \\ \hline \\ \hline \\ \hline \hline \end{array}$$

C (and the carried 1) $+ 4 = 7$. Therefore, $C = 2$.

$$\begin{array}{r} \\ + \\ \hline \\ \hline \\ \hline \hline \end{array}$$

Therefore $A + B + C = 6 + 9 + 2 = 17$.