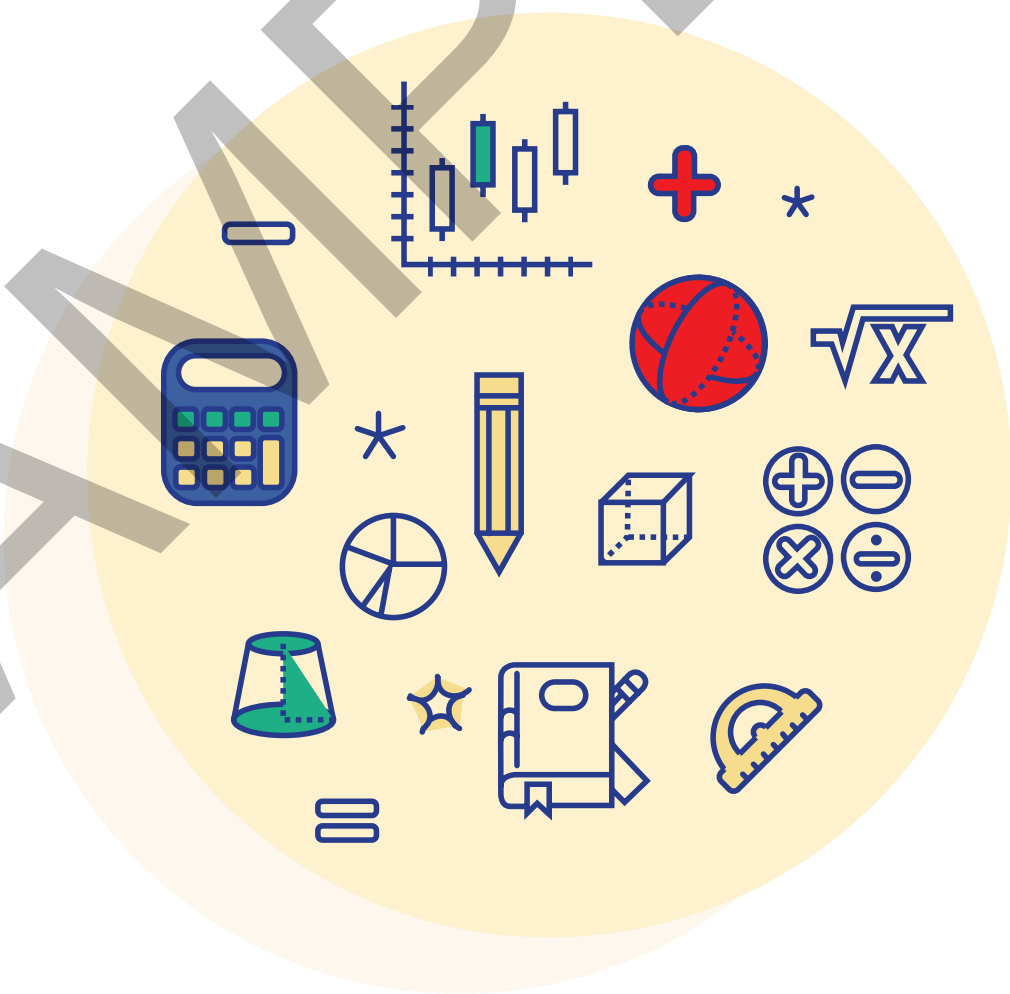


# ESSENTIAL

## OPPORTUNITY CLASS

### MATHEMATICAL REASONING

5 Mathematical Reasoning Test Papers



BOOK **3**

RAY LEE | JIMMY LIU

To Cookie, my light,  
and to Phoebe who I hope  
can one day figure out all the questions in this book.

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Lee, Ray and Liu, Jimmy

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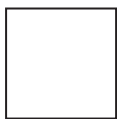
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1 What is the value in the box?

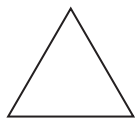
$$12 \times \boxed{?} = 3$$

- A  $\frac{1}{4}$
- B  $\frac{1}{6}$
- C 4
- D 36
- E  $\frac{1}{8}$

2 Which of these shapes has only one right angle?



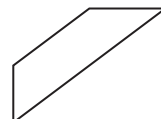
A



B



C



D



E

3 A pole stands 1.5 metres above the ground. If  $\frac{3}{8}$  of the pole is underground, how long is the entire pole?

- A 3.6 m
- B 2.4 m
- C 4.2 m
- D 2.0 m
- E 1.8 m

- 4 Lin exercises from 6:45 am to 7:10 am every day of the week.  
For how long does Lin exercise each week?

A 2 hours 55 minutes  
B 2 hours 15 minutes  
C 1 hour 55 minutes  
D 1 hour 45 minutes  
E 1 hour 25 minutes

- 5 Which is written largest to smallest?

A  $\frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{6}{7}$   
B  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{7}{10}$   
C  $\frac{2}{3}, \frac{4}{4}, \frac{7}{7}, \frac{12}{6}$   
D  $\frac{2}{3}, \frac{2}{4}, \frac{2}{5}, \frac{2}{6}$   
E  $\frac{1}{6}, \frac{1}{5}, \frac{1}{4}, \frac{1}{3}$

- 6 Joe wrote this calculation.

$$139 \times 6 - 134$$

Which of these will give the same answer?

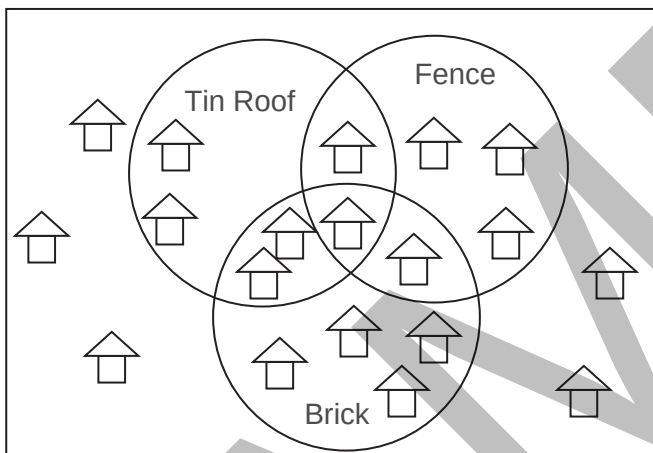
A  $139 \times 7 - 5$   
B  $139 \times 5 + 5$   
C  $140 \times 5 + 5$   
D  $140 \times 6 - 128$   
E  $140 \times 7 - 134$

- 7 Jess thought of a 2-digit number. The product of the digits of the number is equal to double the sum of the digits of the number.

Which of the following could be the number Jess thought of?

- A 11
- B 22
- C 36
- D 42
- E 55

Use the diagram below to answer questions 8 and 9.



Each  represents two houses. Roofs are either tile or tin and houses are made of either brick or wood.

- 8 How many houses are made of bricks but have no fence?

- A 5
- B 6
- C 8
- D 10
- E 12

- 9 How many houses have either a tin roof, or a fence or are made of brick, but not a mix of the 3?

A 9  
B 10  
C 12  
D 14  
E 18

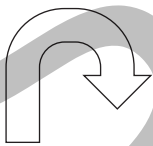
- 10 Karen has seedlings like the one shown.



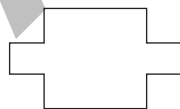
She wants to plant the seedlings in 6 rows with the same number of seedlings in each row. Karen will have 2 seedlings left over. How many seedlings could Karen have?

A 16  
B 17  
C 18  
D 19  
E 20

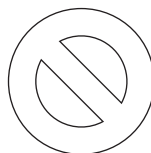
- 11 Which shape has the most axes of symmetry?



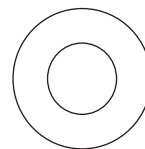
A



B



C



D



E

## OC Practice Test Answers

# Mathematical Reasoning 11

| Question | Answer | Explanation                                                                                                            |
|----------|--------|------------------------------------------------------------------------------------------------------------------------|
| 1        | A      | $\frac{1}{4}$ of 12 = 3                                                                                                |
| 2        | C      | right angle triangle                                                                                                   |
| 3        | B      | $\frac{5}{8}x = 1.5, \quad x = 2.4 \text{ m}$                                                                          |
| 4        | A      | Lin exercises 25 minutes per day<br>1 week : 25 minutes $\times 7 = 175$ minutes = 2 hours 55 minutes                  |
| 5        | D      | $\frac{2}{3}, \frac{2}{4}, \frac{2}{5}, \frac{2}{6}$<br>$= \frac{40}{60}, \frac{30}{60}, \frac{24}{60}, \frac{20}{60}$ |
| 6        | B      | $139 \times 6 - 134 = 700$<br>$139 \times 5 + 5 = 700$                                                                 |
| 7        | C      | $3 \times 6 = 2(3+6) = 18$                                                                                             |
| 8        | E      | 12. each  represents 2 houses.      |
| 9        | E      | The houses which only have one of those is $9 \times 2 = 18$                                                           |
| 10       | E      | $20 \div 6 = 3 \text{ r } 2$                                                                                           |
| 11       | D      | The ring has an infinite number of axes of symmetry.                                                                   |
| 12       | C      | $(10 + 11) \times 2 + (10+11) \times 12 = 294$                                                                         |
| 13       | A      | Red + Red, Red + White, Red + Green, White + White, White + Green                                                      |
| 14       | B      | Green (5) + Red (6) + Blue (7) = 18                                                                                    |