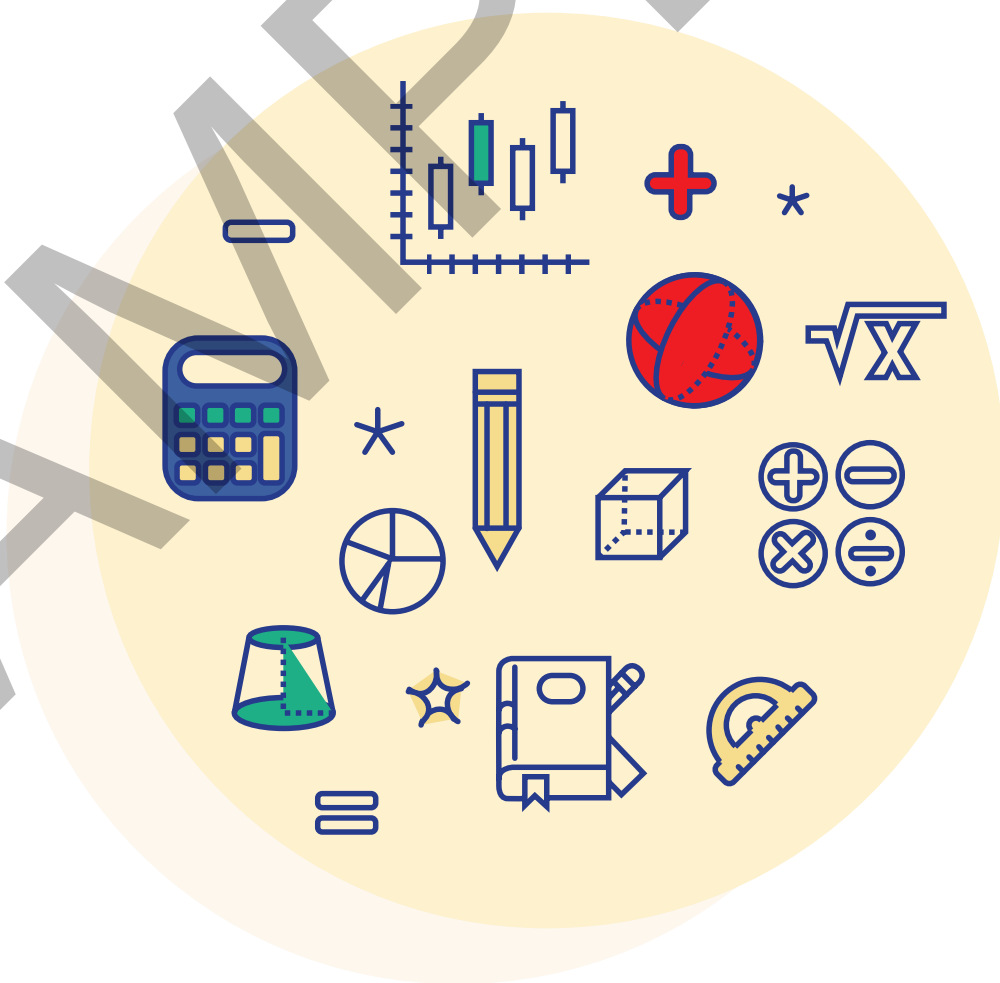


ESSENTIAL

OPPORTUNITY CLASS

MATHEMATICAL REASONING

5 Mathematical Reasoning Test Papers



BOOK **1**

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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First Published 2023

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Lee, Ray and Liu, Jimmy

Essential Opportunity Class
Mathematical Reasoning Book 1
ISBN 978-1-76032-528-2

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- 1 A football game lasts 105 minutes.

If the game starts at 3:00 pm, at what time does it finish?

- A 4:05 pm
- B 4:35 pm
- C 4:45 pm
- D 5:05 pm
- E 5:15 pm

- 2 These three toys come in MaDonald's Lucky Meals.



Choco



Bread



Wilk

Vivian wanted to collect all three toys. She needed a Wilk.

One Wilk can be swapped for three Chocos.

One Choco can be swapped for two Breads.

How many Breads would Vivian need to swap for one Wilk?

- A 2
- B 3
- C 4
- D 5
- E 6

- 3 A remote-control car uses 3 batteries every 6 hours.

The batteries are sold in packs of 4.

How many packs of batteries would be needed to run the car for 48 hours?

- A 6
- B 8
- C 18
- D 24
- E 30

- 4 A car travels 80 km in one hour.

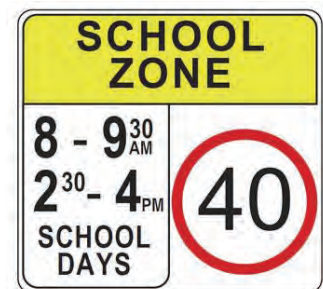
If the car keeps travelling at the same speed without stopping, how far will it travel in two and a half hours?

- A 80 km
- B 160 km
- C 180 km
- D 200 km
- E 240 km

- 5 This sign shows the times when the speed limit near a school is 40 km/h.

For how many hours each week is the speed limit 40 km/h?

- A 3
- B 10
- C 15
- D 18
- E 40



6 Jolene bought 7 bananas for \$3.50. How many bananas could she buy for \$15?

- A** 15
- B** 21
- C** 24
- D** 27
- E** 30

7 Alicia's room is 4 m long and 3 m wide.

How much will it cost to floor her room if it is half carpeted at \$20 per square metre and half tiled at \$30 per square metre?

- A** \$200
- B** \$300
- C** \$400
- D** \$440
- E** \$500

8 Simon travels from Lane Cove to Pymont at an average speed of 80km/hour.

He returns at the same speed.

Daniel makes the same trip, averaging 160km/hr going to Pymont, but only 60km/hr on the return trip.

Which is true?

- A** Simon does the whole journey in the shorter time
- B** Daniel does the whole journey in the shorter time
- C** Simon and Daniel take the same time for the whole journey
- D** you need to know the distance between Lane Cove to Pymont to determine who took the shorter time
- E** None of above

- 9 These are improper fractions. Which option gives the biggest number?

A $\frac{12}{4}$

B $\frac{15}{3}$

C $\frac{30}{5}$

D $\frac{8}{2}$

E $\frac{32}{8}$

- 10 At a certain time of day, a vertical 7m pole casts a shadow of 3m.

What will be the height of a pole that casts a shadow of 9m ?

A 21m

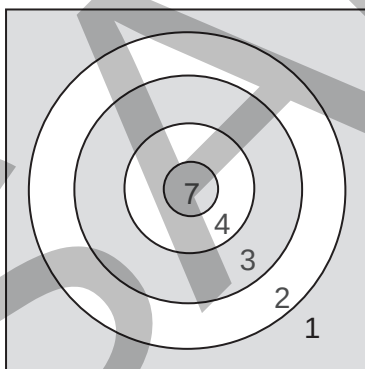
B 22m

C 23m

D 24m

E 25m

- 11 Peter threw four darts at this board.



Which of these scores is **not** possible?

A 8

B 14

C 18

D 26

E 28

OC Practice Test Answers

Mathematical Reasoning 1

Question	Answer	Explanation
1	C	105mins = 1hr 45mins 3:00pm + 1hr 45min = 4:45pm
2	E	1 Wilk = 3 Chocos 1 Choco = 2 Breads means 3 Chocos = 6 Breads Therefore, 1 Wilk = 6 Breads
3	A	3 batteries for 6 hours 24 batteries for 48 hours Since batteries are sold in a pack of 4, it needs 6 packs (24 batteries)
4	D	$80\text{km/h} \times 2.5\text{hr} = 200\text{km}$
5	C	$3\text{hrs} \times 5\text{days} = 15\text{hrs}$
6	E	7 bananas cost \$3.50, then 1 banana costs \$0.50 Therefore, 30 bananas cost \$15
7	B	$4 \times 3 = 12$. Half is carpeted: $20 \times 6 = \$120$. Half is tiled: $30 \times 6 = \$180$. Total: $\$120 + \$180 = \$300$.
8	B	Give the trip an arbitrary distance. For example, say it takes 80km each way. Simon would complete this trip in $160/80=2$ hours. Tom would only need $(80/160 + 80/60)$ hours = $(\frac{1}{2} + \frac{4}{3})$ hours = 1 hour and 50 minutes to complete the trip. Therefore, Daniel does the whole journey in a shorter time.
9	C	$\frac{12}{4}=3$ $\frac{15}{3}=5$ $\frac{30}{5}=6$ $\frac{8}{2}=4$ $\frac{32}{8}=4$
10	A	$7\text{m}:3\text{m} = 21\text{m}:9\text{m}$