

FREE JMSS MINI SAMPLE

A short diagnostic for serious practice.

15 original multiple-choice questions across Science Reasoning, Numerical Reasoning and Mathematics, followed by concise worked explanations.

HOW TO USE THIS SAMPLE

Set a 10-minute timer for each section. Mark your answers only after completing all three sections. Use the explanations to identify the skill behind each mistake.

The full JMSS Entry Preparation pack contains 10 complete timed mocks, 20 writing tasks, detailed solutions and a study guide.

SCIENCE REASONING

Questions 1-5

Use the following investigation to answer Questions 1-5.

Students placed identical cups of hot water in three containers. Each cup began at 80°C and contained 200 mL of water. The containers were left in the same room for 20 minutes.

Container	Material	Final temperature
A	Foam	65°C
B	Aluminium	52°C
C	Glass	57°C

- Which container was the best insulator in this investigation?
A Foam
B Aluminium
C Glass
D They were equally effective
- Why did the students use the same volume of water in each cup?
A To make the cups easier to carry
B To control a variable that could affect cooling
C To increase the temperature change
D To ensure the containers had equal mass
- Which conclusion is supported by the results?
A Aluminium produces heat
B Foam slows heat loss more than glass
C Glass is always a poor conductor
D All materials cool water at the same rate
- A student repeats the experiment but starts one cup at 70°C. What is the main problem?
A The result may not be comparable
B The cup will have no mass
C The room temperature will increase
D The timer will stop working
- Which extra step would most improve the reliability of the investigation?
A Use different cup sizes
B Repeat each condition several times
C Measure only the starting temperatures
D Move each container to a different room

NUMERICAL REASONING

Questions 6-10

6. What is the next number in the sequence? 4, 7, 13, 25, 49, ...

- A 73
- B 91
- C 97
- D 99

7. A code changes each number by multiplying it by 3 and subtracting 2. What code is produced from 11?

- A 29
- B 31
- C 33
- D 35

8. Three students share 84 stickers in the ratio 2 : 3 : 7. How many stickers does the second student receive?

- A 14
- B 18
- C 21
- D 28

9. A train leaves at 8:35 am and arrives at 10:07 am. How long is the journey?

- A 1 hour 22 minutes
- B 1 hour 32 minutes
- C 1 hour 42 minutes
- D 2 hours 32 minutes

10. If 6 workers complete a task in 15 days at the same rate, how many worker-days are required?

- A 21
- B 45
- C 90
- D 120

MATHEMATICS

Questions 11-15

11. A jacket is discounted by 20% from \$75. What is the sale price?
- A \$15
 - B \$55
 - C \$60
 - D \$65
12. The perimeter of a rectangle is 34 cm. Its length is 11 cm. What is its width?
- A 5 cm
 - B 6 cm
 - C 8 cm
 - D 12 cm
13. A recipe uses $\frac{3}{4}$ cup of flour for 12 muffins. How much flour is needed for 20 muffins?
- A 1 cup
 - B $1\frac{1}{4}$ cups
 - C $1\frac{1}{2}$ cups
 - D $1\frac{3}{4}$ cups
14. The ordered data are 3, 5, 7, x , 12, 14, where $7 \leq x \leq 12$. Their median is 9. Find x .
- A 9
 - B 10
 - C 11
 - D 12
15. A square has area 144 cm^2 . What is the length of one side?
- A 10 cm
 - B 11 cm
 - C 12 cm
 - D 14 cm

ANSWERS AND WORKED EXPLANATIONS

Learn from each decision.

1. **A** - Foam had the highest final temperature, so it lost the least heat.
2. **B** - Water volume affects how quickly the water cools, so it needs to be controlled.
3. **B** - Foam finished at 65°C while glass finished at 57°C under the same conditions.
4. **A** - A different starting temperature changes the comparison; it is not a fair test.
5. **B** - Repeats reduce the effect of chance variation and improve reliability.
6. **C** - Each term is double the previous term minus 1: $49 \times 2 - 1 = 97$.
7. **B** - $11 \times 3 - 2 = 31$.
8. **C** - The ratio has 12 parts. $84 \div 12 = 7$, so 3 parts = 21.
9. **B** - 8:35 to 9:35 is 1 hour; then 32 more minutes gives 1 hour 32 minutes.
10. **C** - $6 \times 15 = 90$ worker-days.
11. **C** - 20% of \$75 is \$15, so $\$75 - \$15 = \$60$.
12. **B** - $2(L + W) = 34$, so $L + W = 17$. Therefore $W = 6$.
13. **B** - 20 is $\frac{5}{3}$ of 12, so multiply $\frac{3}{4}$ by $\frac{5}{3}$ to get $\frac{5}{4} = 1 \frac{1}{4}$.
14. **C** - With six values, the median is the average of the third and fourth: $(7 + x) \div 2 = 9$, so $x = 11$.
15. **C** - The side length is $\sqrt{144} = 12$ cm.

Ready for the full pack? 10 full-length JMSS-style mock exams, worked solutions and study guidance are available from Selective Papers Australia.