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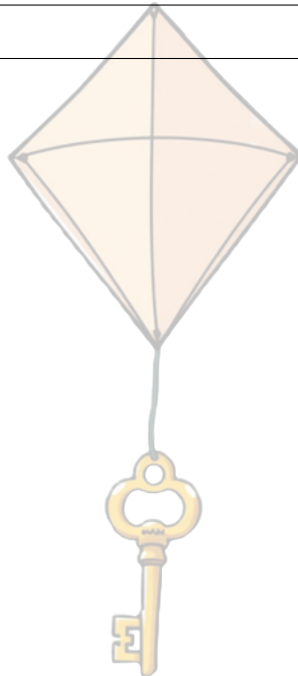
**Kite & Key Academy**  
**Selective Practice Paper**  
Mathematical Reasoning

40 minutes • 35 Questions

**Student number** \_\_\_\_\_

**First name(s)** \_\_\_\_\_

**Family name** \_\_\_\_\_



1 What is 75% of 240?

- A. 160
- B. 170
- C. 180
- D. 190
- E. 200

2 The sum of two consecutive numbers is 47. What is the smaller number?

- A. 22
- B. 23
- C. 24
- D. 25
- E. 26

3 How many faces does a triangular prism have?

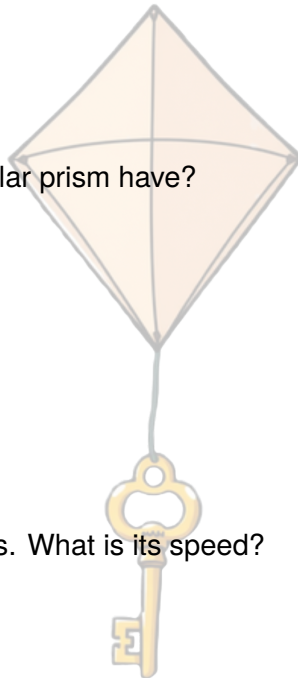
- A. 4
- B. 5
- C. 6
- D. 7
- E. 8

4 A train travels 120 km in 2 hours. What is its speed?

- A. 50 km/h
- B. 55 km/h
- C. 60 km/h
- D. 65 km/h
- E. 70 km/h

5 Which fraction is greatest?

- A.  $\frac{5}{8}$
- B.  $\frac{3}{4}$
- C.  $\frac{7}{10}$
- D.  $\frac{11}{16}$
- E.  $\frac{9}{14}$



6 What is the next number: 4, 9, 16, 25, ...

- A. 30
- B. 34
- C. 36
- D. 40
- E. 49

7 How many minutes are there in  $2\frac{1}{2}$  hours?

- A. 120
- B. 135
- C. 150
- D. 165
- E. 180

8 If  $x = 7$ , what is  $3x + 5$ ?

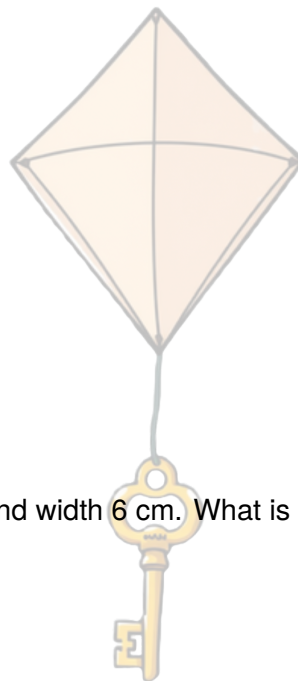
- A. 21
- B. 24
- C. 26
- D. 28
- E. 32

9 A rectangle has length 10 cm and width 6 cm. What is its area?

- A. 30
- B. 50
- C. 56
- D. 60
- E. 120

10 How many multiples of 4 are there between 10 and 40 (inclusive)?

- A. 7
- B. 8
- C. 9
- D. 10
- E. 11



11 What is the remainder when  $7^4$  is divided by 10?

- A. 1
- B. 3
- C. 7
- D. 9
- E. 0

12 A bag contains red and blue marbles in the ratio 5 : 3. If there are 24 marbles, how many are red?

- A. 12
- B. 15
- C. 16
- D. 18
- E. 20

13 Three consecutive even numbers have a sum of 72. What is the largest?

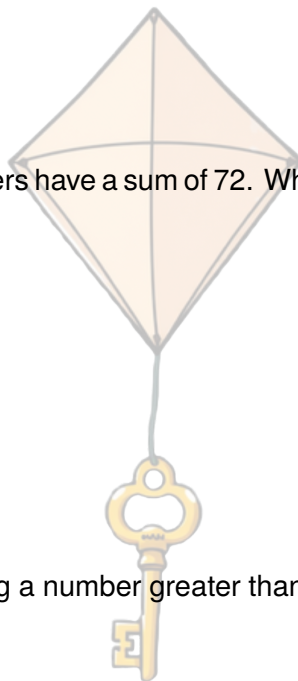
- A. 22
- B. 24
- C. 26
- D. 28
- E. 30

14 What is the probability of rolling a number greater than 4 on a fair die?

- A.  $\frac{1}{6}$
- B.  $\frac{1}{3}$
- C.  $\frac{1}{2}$
- D.  $\frac{2}{3}$
- E.  $\frac{5}{6}$

15 A square has area  $196\text{cm}^2$ . What is its perimeter?

- A. 28
- B. 42
- C. 49
- D. 56
- E. 84



**16** How many different 3-digit numbers can be formed from digits 1,2,3,4 without repetition?

- A. 12
- B. 18
- C. 20
- D. 24
- E. 36

**17** If  $\frac{2}{3}$  of a number is 40, what is the number?

- A. 50
- B. 55
- C. 60
- D. 65
- E. 70

**18** A cyclist rides at 18 km/h for 50 minutes. How far does she travel?

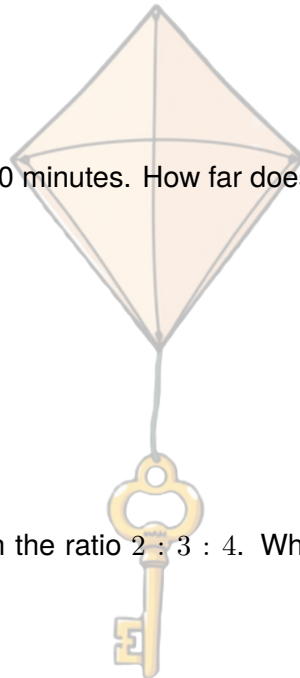
- A. 12 km
- B. 14 km
- C. 15 km
- D. 16 km
- E. 18 km

**19** The angles of a triangle are in the ratio 2 : 3 : 4. What is the largest angle?

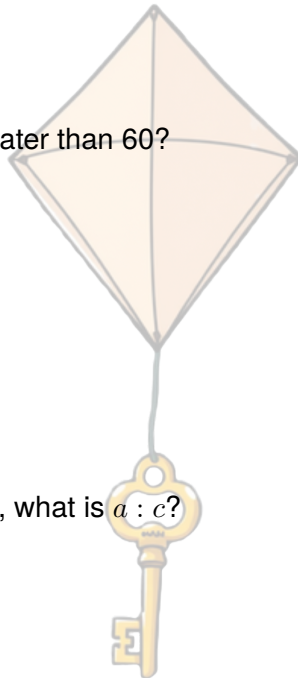
- A.  $40^\circ$
- B.  $60^\circ$
- C.  $80^\circ$
- D.  $90^\circ$
- E.  $100^\circ$

**20** Which of the following is always divisible by 3?

- A.  $2n + 1$
- B.  $n^2$
- C.  $n(n + 1)$
- D.  $n^3 - n$
- E.  $2n^2$



- 21 How many shortest paths exist on a  $3 \times 4$  grid?
- A. 10  
B. 20  
C. 35  
D. 60  
E. 120
- 22 A number is increased by 20% then decreased by 20%. Overall it is
- A. unchanged  
B. 4% lower  
C. 4% higher  
D. 20% lower  
E. 20% higher
- 23 What is the smallest prime greater than 60?
- A. 61  
B. 63  
C. 65  
D. 67  
E. 69
- 24 If  $a : b = 4 : 7$  and  $b : c = 14 : 5$ , what is  $a : c$ ?
- A.  $2 : 5$   
B.  $4 : 5$   
C.  $8 : 5$   
D.  $16 : 5$   
E.  $28 : 5$
- 25 A cube has surface area  $150\text{cm}^2$ . What is its volume?
- A. 64  
B. 75  
C. 100  
D. 125  
E. 216



**26** What is the smallest number leaving remainder 2 when divided by 7 and remainder 3 when divided by 5?

- A. 17
- B. 23
- C. 32
- D. 38
- E. 52

**27** A clock gains 5 minutes every 3 hours. If correct at 6:00 am, what does it show at 6:00 pm?

- A. 6:15
- B. 6:20
- C. 6:25
- D. 6:30
- E. 6:35

**28** In the pattern AB, BCD, CDEFG, DEFGHIJ, how many letters are in the 7th group?

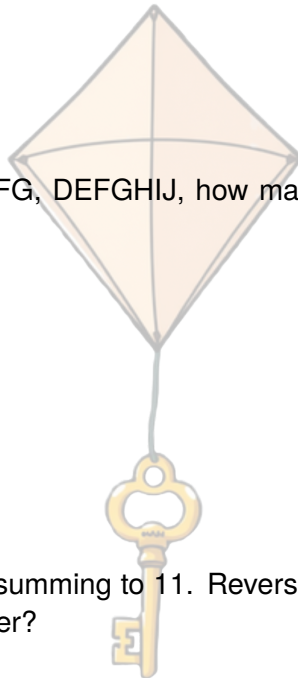
- A. 10
- B. 11
- C. 12
- D. 13
- E. 14

**29** A two-digit number has digits summing to 11. Reversing the digits increases it by 27. What is the number?

- A. 29
- B. 38
- C. 47
- D. 56
- E. 65

**30** A rectangle  $12 \times 9$  has a  $3 \times 3$  square removed. What is the remaining area?

- A. 99
- B. 102
- C. 105
- D. 108
- E. 111



31 How many factors does 360 have?

- A. 18
- B. 20
- C. 24
- D. 30
- E. 36

32 What is the probability that a randomly chosen factor of 30 is even?

- A.  $\frac{1}{3}$
- B.  $\frac{2}{5}$
- C.  $\frac{1}{2}$
- D.  $\frac{3}{5}$
- E.  $\frac{2}{3}$

33 A sequence follows:  $a_1 = 2$ ,  $a_{n+1} = 2a_n + 1$ . What is  $a_4$ ?

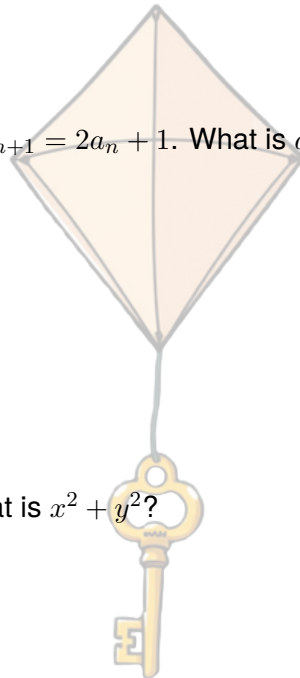
- A. 15
- B. 17
- C. 19
- D. 23
- E. 31

34 If  $x + y = 10$  and  $xy = 21$ , what is  $x^2 + y^2$ ?

- A. 58
- B. 64
- C. 70
- D. 78
- E. 82

35 What is the remainder when  $2^{100}$  is divided by 7?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5





Answer Key (Internal Use)

- |       |       |       |
|-------|-------|-------|
|       | 12. D | 24. C |
| 1. C  | 13. D | 25. D |
| 2. B  | 14. B | 26. B |
| 3. B  | 15. D | 27. C |
| 4. C  | 16. D | 28. D |
| 5. B  | 17. C | 29. C |
| 6. C  | 18. C | 30. D |
| 7. C  | 19. C | 31. C |
| 8. D  | 20. D | 32. C |
| 9. D  | 21. D | 33. B |
| 10. B | 22. B | 34. C |
| 11. D | 23. A | 35. B |

