

## Patterns and algebra

Circle the correct answer.

- 1  $3 \times 6 + 7 = 5 \times \square$   
 $\square = ?$  *Hint 1*  
 A 5                                      B 6  
 C 20                                      D 25
- 2 Which pattern is an example of subtracting 2 and then halving?  
 A 5, 6, 8, 12, 20, 36  
 B 64, 32, 16, 8, 6, 3  
 C 82, 80, 40, 38, 19, 17  
 D 126, 62, 30, 14, 6
- 3 If  $96 \div 12 = 8$ , then  $8 \times \square = 96$   
 $\square = ?$   
 A 8                                      B 12  
 C 88                                      D 104
- 4 What is the next term in this sequence?  
 $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}, \frac{1}{11}, ?$   
 A  $\frac{1}{12}$     B  $\frac{1}{13}$     C  $\frac{2}{11}$     D  $\frac{1}{22}$
- 5 This is the start of a number pattern.  
 3, 4, 6, 9, 13, ...  
 If the pattern is continued what will be the tenth term?  
 A 18                                      B 24  
 C 39                                      D 48
- 6  $9 + \square - 5 = 3 \times 4$   
 $\square = ?$   
 A 3                                      B 8  
 C 12                                      D 18
- 7  $4 \times 13 = \square + 13 + 13 + 13$   
 $\square = ?$  *Hint 2*  
 A 13                                      B 26  
 C 29                                      D 52
- 8  $25 + 15 \div 5$  is the same as: *Hint 3*  
 A  $15 \div 5 + 25$   
 B  $25 + 5 \div 15$   
 C  $5 \div 25 + 15$   
 D  $25 \div 5 + 15$

- 9 What is the first number in this sequence?  
 ?, 81, 27, 9, 3, 1  
 A 108  
 B 119  
 C 163  
 D 243
- 10 Find  $\square$  so that  $30 \times 4 = \square + 80$   
 A 40  
 B 70  
 C 80  
 D 120
- 11 What is the rule for this sequence?  
 5, 9, 8, 12, 11, 15, 14  
 A Add 4.  
 B Add 4, subtract 1.  
 C Add 4, then double.  
 D Add  $2 \times 2$ , double, then halve.

- 12 Find the missing number in this number pattern. *Hint 4*

|    |    |    |    |   |
|----|----|----|----|---|
| 36 | 30 | 24 | 15 | ? |
| 12 | 10 | 8  | 5  | 9 |

- A 1  
 B 3  
 C 6  
 D 27

- 13 Find the missing number in this number pattern. *Hint 5*

|   |   |    |    |    |
|---|---|----|----|----|
| 5 | 9 | 17 | 29 | ?  |
| 1 | 2 | 4  | 7  | 10 |

- A 33                                      B 38  
 C 40                                      D 41

*Hint 1: Remember the order of operations.*

*Hint 2: Remember the relationship between + and  $\times$ .*

*Hint 3: Order of operations.*

*Hint 4: One-step calculation*

*Hint 5: Two-step calculation ( $-$ ,  $\div$ )*