

## FACTORISATION AND EXPANSION YEARS 9 AND 10

1 The highest common factor of  $3x$ ,  $4x^2y^2$  and  $9xy$  is: -

- |   |      |   |      |
|---|------|---|------|
| A | $x$  | B | $y$  |
| C | $3x$ | D | $xy$ |

2 When  $20x^2y - 15xy$  is fully factorised, the answer is:

- |   |                   |   |                    |
|---|-------------------|---|--------------------|
| A | $x(20xy - 15y^2)$ | B | $5(4x^2y - 3xy^2)$ |
| C | $5xy(4x - 3)$     | D | $5xy(4x - 3y)$     |

3 The expanded form of  $(x + 7)^2$  is:

- |   |            |   |                  |
|---|------------|---|------------------|
| A | $x^2 + 49$ | B | $x^2 + 14x + 49$ |
| C | $x^2 - 49$ | D | $x^2 + 7x + 49$  |

4 The factors of  $x^2 - 81$  are:

- |   |                  |   |                   |
|---|------------------|---|-------------------|
| A | $(x + 9)^2$      | B | $(x - 9)^2$       |
| C | $(x + 9)(x - 9)$ | D | $(x - 81)(x + 1)$ |

5 The expanded form of  $(2x - 3)(2x + 3)$  is:

- |   |            |   |                 |
|---|------------|---|-----------------|
| A | $4x^2 - 9$ | B | $4x^2 - 6$      |
| C | $2x^2 - 3$ | D | $4x^2 - 6x + 9$ |

6 The perfect square from the following list is:

- |   |                 |   |                |
|---|-----------------|---|----------------|
| A | $x^2 + 16$      | B | $x^2 - 16$     |
| C | $x^2 - 8x + 16$ | D | $x^2 - 9x + 9$ |

7 The factors of  $2x^2 - 5x - 3$  are:

- |   |                   |   |                   |
|---|-------------------|---|-------------------|
| A | $(2x + 3)(x - 1)$ | B | $(2x - 1)(x + 3)$ |
| C | $(2x - 1)(x - 3)$ | D | $(2x + 1)(x - 3)$ |

8 The expression which *cannot* be factorised is:

- |   |                |   |                 |
|---|----------------|---|-----------------|
| A | $x^2 - 7$      | B | $x^2 + 16$      |
| C | $x^2 - 2x + 1$ | D | $(x + 2)^2 - 4$ |

9 The expanded form of  $(3x - 11)^2$  is:

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| A | $9x^2 + 121$       | B | $9x^2 - 121$       |
| C | $9x^2 - 66x - 121$ | D | $9x^2 - 66x + 121$ |



18 The *simplest* factors of  $(2x + 7)^2 - 5$  are:

- A  $(2x + 12)(2x + 2)$
- B  $(2x + 7 + \sqrt{5})(2x - 7 - \sqrt{5})$
- C  $(2x + 7 + \sqrt{5})(2x + 7 - \sqrt{5})$
- D the expression cannot be factorised

19 The *simplest* factors of  $18 - 2a^2$  are:

- A  $-2(a^2 + 9)$
- B  $-2(a + 3)^2$
- C  $-2(a + 3)(a - 3)$
- D  $(9 - 2a)(2 + a)$

20 For the expression  $x^2 - 6x + 2$ , the factors are:

- A  $(x - 6)(x + 2)$
- B  $(x - 3 - \sqrt{7})(x - 3 + \sqrt{7})$
- C  $(x - 3 - \sqrt{7})(x + 3 + \sqrt{7})$
- D There are no real factors

21 The *simplest* factors of  $75a^2 - 27$  are:

- A  $3(25a^2 - 9)$
- B  $(25a + 9)(3a - 3)$
- C  $3(25a + 9)(a - 1)$
- D  $3(5a + 3)(5a - 3)$

22 The *simplest* expression for  $(x + 3)^2 - (x - 1)^2$  is:

- A  $4(2x + 2)$
- B  $8(x + 1)$
- C  $4(x + 1)$
- D 4

23 The *simplest* expression for the following fraction is:

$$\frac{x^2 - 1}{x^2 + 2x + 1}$$

- A 1
- B  $-\frac{1}{2x + 1}$
- C  $\frac{x - 1}{x + 1}$
- D The same, since the fraction cannot be simplified.

24 The expanded form of  $2(x + 8)(x - 4)$  is:

- A  $2x^2 + 4x - 32$
- B  $2x^2 + 8x - 64$
- C  $2x^2 - 32$
- D  $4x^2 + 16x - 128$

25 The factorised form of  $3m^2 - 3mn - m + n$  is:

- A  $(3m - 1)(m - n)$
- B  $(3m + 1)(m - n)$
- C  $-(3m - 1)(m + n)$
- D The expression cannot be factorised.

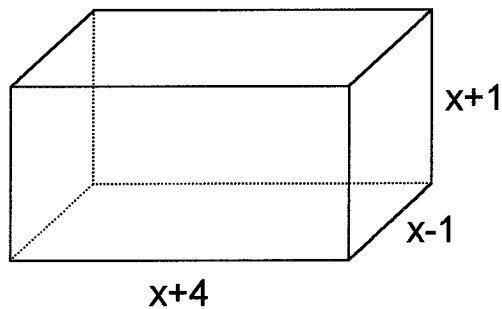
26 The fully factorised form of  $\sqrt{8xy} - \sqrt{2y}$  is:

- A  $y(\sqrt{8x} - \sqrt{2})$                       B  $\sqrt{2y}(2x - 1)$   
C  $\sqrt{6}(x - 1)$                          D  $\sqrt{6y}(x - 1)$

27 To complete the square for  $x^2 - x$ , the third term must be:

- A 1    B  $-\frac{1}{4}$   
C  $\frac{1}{2}$     D  $\frac{1}{4}$

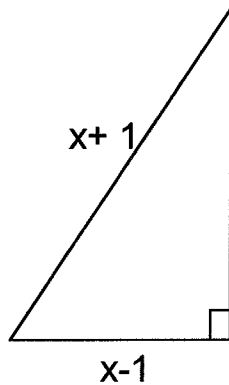
28



The volume of the box shown is given by:

- A  $x^3 - 4$                                       B  $3x + 4$   
C  $x^3 + 4x^2 - x - 4$                       D  $x^4 + 5x^3 + 3x^2 - 5x - 4$

29



For the right-angled triangle shown, the third side must have the value:

- A  $2\sqrt{x}$  units                                B  $4x$  units  
C  $2x^2 + 2$  units                             D 2 units

30 The expansion of  $(x - y)^3$  is:

- A  $x^3 - y^3$                                       B  $x^3 - 3x^2y + 3xy^2 - y^3$   
C  $x^3 - 3x^2y - 3xy^2 + y^3$                 D  $x^3 - 6xy + y^3$

## ANSWERS TO FACTORISATION & EXPANSION

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