# **Identities**

## Level 1

#### Which of the following is/are identities? 1

(1) 
$$(x+1)(x+2) = x^2 + 3x + 2$$

(2) 
$$4x^2 - 9 = (2x+3)(2x-3)$$

(3) 
$$(x+1)^2 = x^2 + x + 1$$

A

(2) and (3) only D (1) only

E (1), (2) and (3)B (3) only

C (1) and (2) only

#### If $(A-2)x^2 + (2A+B)x \equiv 0$ , find the values of A and B. 2

A = 2, B = 4A

D A = 2, B = -1

A = 2. B = -4B

A = 4, B = 2 $\mathbf{E}$ 

A = 2, B = 1 $\mathbf{C}$ 

3 If 
$$x^2 + px + 7 \equiv (x+q)^2 - 2$$
, find the values of p and q.

**A** 
$$p = 3, q = 6$$

**B** 
$$p=3, q=6 \text{ or } p=-3, q=-6$$

C 
$$p = 6, q = 3 \text{ or } p = -6, q = -3$$

**D** 
$$p = 6$$
,  $q = -3$  or  $p = -6$ ,  $q = 3$ 

**E** 
$$p=3, q=-6 \text{ or } p=3, q=-3$$



# If $A(x-2)^2 - B(x-3)^2 \equiv x^2 - 6$ , find the values of A and B.

A = 3, B = 2A

A = 2, B = -3D

A = 2, B = 3B

A = -3, B = 2 $\mathbf{E}$ 

A = 3, B = -2 $\mathbf{C}$ 



#### If $(x-a)(x+2) \equiv x^2 + bx - 6$ , find the values of a and b. 5

a = -3, b = -1A

a = 3, b = -1D

a = -3, b = 5B

a = -1, b = 3 $\mathbf{E}$ 

a = 3, b = 1 $\mathbf{C}$ 



6 If 
$$m(x^2-1)-n(x^2-x)+p(x^2+x) \equiv 1$$
, find m.

2

B 1 0

 $\mathbf{E}$ -2

## Level 2

7 If 
$$(x+A)(x+B)^2 \equiv x^3 + 5x^2 + 8x + 4$$
,  $B =$ 

- **B** 2
- **D** 4
- **E** 5

8 If 
$$A(x^2-2x)+B(1-3x^2)+C(x^2+x+) \equiv x^2-x-1$$
,  $A=$ 

- **A**  $\frac{9}{21}$  **B**  $\frac{11}{21}$  **C**  $\frac{11}{25}$  **D**  $\frac{9}{26}$  **E**  $\frac{11}{27}$

9 If 
$$ax^2 + 3x + 4 = (2x - 1)(bx + 2) + c$$
, find the values of a, b and c.

- a = 2, b = 1, c = 6
- **D** a = 14, b = 7, c = 2
- a = 2, b = 1, c = 2
- **E** a = 4, b = 2, c = 6
- a = 2, b = 7, c = 6



[10] If 
$$\frac{x^3 - 2x^2 + 1}{x - 2} \equiv Q(x) + \frac{R}{x - 2}$$
, where  $Q(x)$  is a quadratic polynomial and  $R$  is a constant, find the value of  $R$ .

- A 3 B 1
- **C** 1
- **D** 2
- **E** 5
- For what value of k does the equation in x:  $(x-2)(x-k) = x^2$  become an identity? 11
  - 0 A

- **E** No such value of k exists.

 $\mathbf{C}$ 



- If  $\frac{1}{x^2 x 2} \equiv \frac{A}{x + 1} + \frac{B}{x 2}$ , find the values of A and B.
  - **A**  $A = \frac{1}{2}, B = -\frac{1}{2}$

**B**  $A = -\frac{1}{2}, B = \frac{1}{2}$ 

 $\mathbf{E} \qquad A = \frac{2}{2}, \ B = \frac{1}{2}$ 

A = -1, B = 1 $\mathbf{C}$