Identities

Exam Style Questions

1. For each of the following, tick the boxes to say whether it is an equation, expression, identity or formula.

	Equation	Expression	Identity	Formula
$3x - 2 = 8x + 6$				
$5x + y$				
$2x + 3x \equiv 5x$				
$A = \pi r^2$				
$3x(x + 2) \equiv bx^2 + 6x$				
$(x + 1)(x + 2) = 0$				

(2 marks)

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2. For the following, identify whether it is an equation ($=$) or identity ($\equiv$) by using the correct symbols.

$2x + 7$		2
$8x - 2x$		$6x$
$2x^2 + 3x$		$3x + 2x^2$
$11x - 2$		$-x + 7$
$x(x + 2)$		$x^2 + 2x$

(2 marks)

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3. $x(3x + a) \equiv 3x^2 + 7x$

Find the value of a.

$a =$ .....

(1 mark)

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4. $a(2x + 3) \equiv 14x + b$

Find the values of a and b.

$a =$ .....

$b =$ .....

(2 marks)

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5. $6(x + a) + b(x + 7) \equiv 9x + 33$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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6. $(a + 1)x^2 + 3b \equiv 2x^2 + 6$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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7. $a(x + 4) + 5(2x + b) \equiv 17x + 33$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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8. $-3(x + 1) + a(x - b) \equiv -x - 11$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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9. $3ax + 7 + 2(x + b) \equiv 17x + 15$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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10. $(x + 4)(x + 2) + ax + b \equiv x^2 + 13x + 10$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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11. $2(3x - 1)(x + 3) + ax^2 - b \equiv 7x^2 + 16x - 7$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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12. $(x - 1)^2 + a(x - 1) - x + b \equiv x^2$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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13. $(x + a)(x + 2a) \equiv x^2 + 3bx + 2$

Given that a is a negative integer, find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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14. $(x + b)^2 \equiv x^2 + ax + 49$

Given that b is a positive integer, find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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15. $6x^3 + 9x^2 \equiv (a + b)x^3 + abx^2$

Find the values of a and b.

$a =$ .....
$b =$ .....

(3 marks)

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16. $7x + 2 \equiv (2a + b)x + (a + b)$

Find the values of a and b.

$a =$ .....
$b =$ .....

(3 marks)

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17. $ax^3 + (b + c)x^2 + (2b + 3c)x + d \equiv 3x^3 + 5x + 7$

Find the values of a, b, c and d.

$a =$ .....
$b =$ .....
$c =$ .....
$d =$ .....

(3 marks)

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18. $\frac{ax^2+7x+b}{2x+3} \equiv x + 2$

Find the values of a and b.

$a =$ .....
$b =$ .....

(2 marks)

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19. $\frac{(x+1)(x+2)(x+a)(bx+1)}{(x+3)(2x+1)} \equiv (x+1)(x+2)$

Write down the values of a and b.

$a =$ .....

$b =$ .....

(2 marks)