

Introduction to Factoring

ANSWERS



Section A Complete the multiplication grid, expanding brackets where necessary.

x	$2 + x$	$2x + 7$	$x - 5$
4	$4(2 + x)$	$4(2x + 7)$	$4(x - 5)$
	$8 + 4x$	$8x + 28$	$4x - 20$
5	$5(2 + x)$	$5(2x + 7)$	$5(x - 5)$
	$10 + 5x$	$10x + 35$	$5x - 25$
7	$7(2 + x)$	$7(2x + 7)$	$7(x - 5)$
	$14 + 7x$	$14x + 49$	$7x - 35$

Section B Complete the multiplication grid, expanding brackets where necessary.

x	$2x + 1$	$4x - 2$	$3x + 8$
3	$3(2x + 1)$	$3(4x - 2)$	$3(3x + 8)$
	$6x + 3$	$12x - 6$	$9x + 24$
6	$6(2x + 1)$	$6(4x - 2)$	$6(3x + 8)$
	$12x + 6$	$24x - 12$	$18x + 48$
9	$9(2x + 1)$	$9(4x - 2)$	$9(3x + 8)$
	$18x + 9$	$36x - 18$	$27x + 72$

Section C Complete the multiplication grid.
Write the factorised term above the expanded term where necessary.

x	$5x + 1$	$x + 3$	$2x + 5$
2	$2(5x + 1)$	$2(x + 3)$	$2(2x + 5)$
	$10x + 2$	$2x + 6$	$4x + 10$
3	$3(5x + 1)$	$3(x + 3)$	$3(2x + 5)$
	$15x + 3$	$3x + 9$	$6x + 15$
5	$5(5x + 1)$	$5(x + 3)$	$5(2x + 5)$
	$25x + 5$	$5x + 15$	$10x + 25$

Section D Complete the multiplication grid.
Write the factorised term above the expanded term where necessary.

x	$2 - x$	$4 - 7x$	$3x + 8$
5	$5(2 - x)$	$5(4 - 7x)$	$5(3x + 8)$
	$10 - 5x$	$20 - 35x$	$15x + 40$
4	$4(2 - x)$	$4(4 - 7x)$	$4(3x + 8)$
	$8 - 4x$	$16 - 28x$	$12x + 32$
3	$3(2 - x)$	$3(4 - 7x)$	$3(3x + 8)$
	$6 - 3x$	$12 - 21x$	$9x + 24$

Introduction to Factoring

ANSWERS



Section E

Complete the multiplication grid.

Write the factorised term above the expanded term where necessary.

x	$x - 7$	$x + 2$	$4x + 2$
x	$x(x - 7)$	$x(x + 2)$	$x(4x + 2)$
	$x^2 - 7x$	$x^2 + 2x$	$4x^2 + 2x$
2x	$2x(x - 7)$	$2x(x + 2)$	$2x(4x + 2)$
	$2x^2 - 14x$	$2x^2 + 4x$	$8x^2 + 4x$
5x	$5x(x - 7)$	$5x(x + 2)$	$5x(4x + 2)$
	$5x^2 - 35x$	$5x^2 + 10x$	$20x^2 + 10x$

Section F

Write down the HCF between the two terms.

Terms		HCF
2x	18	2
9x	27	9
12x	18	6
20x	55	5
16	36x	4
14	26x	2

Terms		HCF
8x	-16	8
-7x	21	7
20x	-5	5
6x ²	9x	3x
15x	18x ²	3x
16x	-24x ²	8x

Section G

Factorise the following expressions.

- | | | |
|---------------------------------|-------------------------------|-------------------------------------|
| 1) $4x + 20$
$4(x + 5)$ | 9) $6x - 36$
$6(x - 6)$ | 17) $x^2 + 2x$
$x(x + 2)$ |
| 2) $5x + 15$
$5(x + 3)$ | 10) $7x - 49$
$7(x - 7)$ | 18) $2x^2 - 14x$
$2x(x - 7)$ |
| 3) $6x - 12$
$6(x - 2)$ | 11) $9x - 72$
$9(x - 8)$ | 19) $6x^2 - 9x$
$3x(2x - 3)$ |
| 4) $3x + 6$
$3(x + 2)$ | 12) $4x - 48$
$4(x - 12)$ | 20) $15x^2 + 30x$
$15x(x + 2)$ |
| 5) $35x + 15$
$5(7x + 3)$ | 13) $35 + 7x$
$7(5 + x)$ | 21) $64x - 8x^2$
$8x(8 - x)$ |
| 6) $24x + 16$
$8(3x + 2)$ | 14) $32 - 8x$
$8(4 - x)$ | 22) $63x + 36x^2$
$9x(7 + 4x)$ |
| 7) $18x - 12$
$6(3x - 2)$ | 15) $14 - 21x$
$7(2 - 3x)$ | 23) $132x^2 + 44x$
$44x(3x + 1)$ |
| 8) $33x + 121$
$11(3x + 11)$ | 16) $27 - 18x$
$9(3 - 2x)$ | 24) $125x - 50x^2$
$25x(5 - 2x)$ |