Lesmahagow High School

Mathematics Department

National 5

Factorising

Corrective Actions

WORKSHEETS

Factorise – Common Factor	Take the factors each term has in common outside the bracket: **e.g.** $4x^2 + 8x = 4x(x + 2)$ **NB:** Always look for a common factor first.

*******Remember we factorise trinomials using the AC method – FOIL only works with binomials*******

Topic	**Skills**
Factorise – Difference of Two Squares	Always takes the same form, one square number take away another. Easy to factorise: **e.g.** $x^2 - 9 = (x + 3)(x - 3)$ $5x^2 - 125 = 5(x^2 - 25)$ *(Common factor first)* $= 5(x + 5)(x - 5)$
Factorise – Trinomial (simple)	Use any appropriate method to factorise: **e.g.** Opposite of FOIL: • Factors of first term are Firsts in brackets. • Lasts multiply to give last term and add to give middle term. $x^2 - x - 6 = (x - 3)(x + 2)$
Factorise – Trinomial (hard)	This is more difficult. Use suitable method. Using opposite of FOIL above with trial and error. **NB:** The Outsides add Insides give a check of the correct answer: **e.g.** $3x^2 - 13x - 10$ $= \cancel{(3x - 5)(x + 2)}$ *Check*: $3x \times 2 + (-5) \times x = 6x - 5x = -x$ ✗ $= (3x + 2)(x - 5)$ *Check*: $3x \times (-5) + 2 \times x = -15x + 2x = -13x$ ✓ If the answer is wrong, score out and try alterative factors or positions. Keep a note of the factors you have tried.

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Mathematics Department

N5

Factorising

https://www.national5maths.co.uk/free-national-5-maths-2/

FACTORISING an ALGEBRAIC EXPRESSION

1. Factorise by first finding a common factor:

(a)	$2x + 2y$	**(b)**	$3c + 3d$	**(c)**	$6s + 6t$	**(d)**	$12x + 12y$
(e)	$9a + 9b$	**(f)**	$8b + 8c$	**(g)**	$5p + 5q$	**(h)**	$7g + 7h$
(i)	$4m + 4n$	**(j)**	$9e + 9f$	**(k)**	$13j + 13k$	**(l)**	$14v + 14w$

2. Factorise by finding the common factor:

(a)	$2x + 4$	**(b)**	$3d + 9$	**(c)**	$6s + 3$	**(d)**	$12x + 4$
(e)	$6 + 9a$	**(f)**	$2b + 8$	**(g)**	$5y + 10$	**(h)**	$10 + 15c$
(i)	$12x + 16$	**(j)**	$18m + 24$	(**k)**	$30 + 36a$	**(i)**	$14y + 21$

3. Factorise by finding the common factor:

(a)	$3x - 6$	**(b)**	$4y - 8$	**(c)**	$16 - 8a$	**(d)**	$10c - 15$
(e)	$9s - 12$	**(f)**	$2b - 14$	**(g)**	$12x - 20$	**(h)**	$22m - 33$
(i)	$15x - 10$	**(j)**	$18 - 12y$	**(k)**	$25b - 20$	**(l)**	$18d - 30$

4. Factorise by finding the common factor:

(a)	$2a + 4b$	**(b)**	$10x - 12y$	**(c)**	$18m + 24n$	**(d)**	$10c + 15d$
(e)	$6a - 9x$	**(f)**	$18s - 12t$	**(g)**	$12x + 15y$	**(h)**	$14a - 7b$
(i)	$25c + 10d$	**(j)**	$9b - 15y$	**(k)**	$18x + 24y$	**(i)**	$6a + 28b$

5. Factorise by finding the common factor

(a)	$ax + ay$	**(b)**	$xy^2 + xa^2$	**(c)**	$pqr + pst$
(d)	$xay - bac$	**(e)**	$pq + p$	**(f)**	$y^2 + y$
(g)	$a^2 - ab$	**(h)**	$ab - bc$	**(i)**	$n^2 - 3n$
(j)	$xy + y^2$	**(k)**	$abc - abd$	**(l)**	$fgh - efg$

6. Factorise by finding the highest common factor:

(a)	$2ax + 6a$	**(b)**	$3y + 9y^2$	**(c)**	$24a - 16ab$
(d)	$pq^2 - pq$	**(e)**	$12xy - 9xz$	**(f)**	$6b^2 - 4b$
(g)	$3a^2 + 27ah$	**(h)**	$15abc + 20abd$	**(i)**	$3s^3 - 9s^2$
(j)	$14x - 12xyz$	**(k)**	$10b^2c - 15bcd$	**(l)**	$2\pi r^2 + 2\pi rh$

7. Factorise by finding the highest common factor:

(a)	$ap + aq - ar$	**(b)**	$2a + 2b + 2c$	**(c)**	$6e - 2f + 4g$
(d)	$p^2 + pq + xp$	**(e)**	$3ab - 6bc - 9bd$	**(f)**	$\frac{1}{2} ah + \frac{1}{2} bh + \frac{1}{2} ch$
(g)	$5x^2 - 8xy + 5x$	**(h)**	$4ac + 6ad - 10a^2$	**(i)**	$15p^2 + 10pq + 20ps$

8. Factorise the following expressions, which contain a difference of squares:

(a)	$a^2 - b^2$	**(b)**	$x^2 - y^2$	**(c)**	$p^2 - q^2$	**(d)**	$s^2 - t^2$
(e)	$a^2 - 3^2$	**(f)**	$x^2 - 2^2$	**(g)**	$p^2 - 9^2$	**(h)**	$c^2 - 5^2$
(i)	$b^2 - 1$	**(j)**	$y^2 - 16$	**(k)**	$m^2 - 25$	**(l)**	$a^2 - 9$
(m)	$36 - d^2$	**(n)**	$4 - q^2$	**(o)**	$49 - w^2$	**(p)**	$x^2 - 64$

9. Factorise the following expressions, which contain a difference of squares:

(a)	$a^2 - 4b^2$	**(b)**	$x^2 - 25y^2$	**(c)**	$p^2 - 64q^2$	**(d)**	$16c^2 - d^2$
(e)	$81 - 4g^2$	**(f)**	$36w^2 - y^2$	**(g)**	$4a^2 - 1$	**(h)**	$g^2 - 81h^2$
(i)	$49x^2 - y^2$	**(j)**	$9c^2 - 16d^2$	**(k)**	$4p^2 - 9q^2$	**(l)**	$b^2 - 100c^2$
(m)	$25 - 16a^2$	**(n)**	$4d^2 - 121$	**(o)**	$225 - 49k^2$	**(p)**	$9x^2 - 0{\cdot}25$

10. Factorise the following expressions which contain a common factor and a difference of two squares:

(a)	$2a^2 - 2b^2$	**(b)**	$5p^2 - 5$	**(c)**	$45 - 5x^2$	**(d)**	$4d^2 - 36$
(e)	$2y^2 - 50$	**(f)**	$4b^2 - 100$	**(g)**	$3q^2 - 27$	**(h)**	$8a^2 - 32b^2$
(i)	$ab^2 - 64a$	**(j)**	$xy^2 - 25x$	**(k)**	$abc^2 - ab$	**(l)**	$8p^2 - 50q^2$
(m)	$2x^2 - 2{\cdot}88$	**(n)**	$ak^2 - 121a$	**(o)**	$10s^2 - 2{\cdot}5$	**(p)**	$\frac{1}{2} y^2 - 450$

11. Factorise the following quadratic expressions:

(a)	$x^2 + 3x + 2$	**(b)**	$a^2 + 2a + 1$	**(c)**	$y^2 + 5y + 4$
(d)	$x^2 + 8x + 7$	**(e)**	$x^2 + 6x + 9$	**(f)**	$b^2 + 8b + 12$
(g)	$a^2 + 9a + 14$	**(h)**	$w^2 + 10w + 9$	**(i)**	$d^2 + 7d + 10$
(j)	$x^2 + 10x + 21$	**(k)**	$p^2 + 9p + 20$	**(l)**	$c^2 + 10c + 24$
(m)	$s^2 + 12s + 36$	**(n)**	$x^2 + 11x + 28$	**(o)**	$y^2 + 10y + 25$

12. Factorise the following quadratic expressions:

(a)	$a^2 - 8a + 15$	**(b)**	$x^2 - 9x + 8$	**(c)**	$c^2 - 9c + 18$
(d)	$y^2 - 4y + 4$	**(e)**	$b^2 - 6b + 5$	**(f)**	$x^2 - 15x + 14$
(g)	$c^2 - 10c + 16$	**(h)**	$x^2 - 7x + 6$	**(i)**	$y^2 - 12n + 32$
(j)	$p^2 - 11p + 24$	**(k)**	$a^2 - 13a + 36$	**(l)**	$x^2 - 15x + 36$
(m)	$b^2 - 4b + 3$	**(n)**	$q^2 - 11q + 10$	**(o)**	$a^2 - 7y + 12$

13. Factorise the following quadratic expressions:

(a)	$b^2 + 3b - 10$	**(b)**	$x^2 + 6x - 7$	**(c)**	$y^2 - y - 6$
(d)	$a^2 - a - 20$	**(e)**	$q^2 + 2q - 8$	**(f)**	$x^2 - 8x - 20$
(g)	$d^2 + 4d - 21$	**(h)**	$c^2 + 9c - 36$	**(i)**	$p^2 - 5p - 24$
(j)	$y^2 - 7y - 8$	**(k)**	$a^2 + 5a - 6$	**(l)**	$x^2 - 5x - 36$
(m)	$b^2 - 4b - 5$	**(n)**	$s^2 + 2s - 24$	**(o)**	$d^2 + 6d - 16$

14. Factorise the following quadratic expressions:

(a)	$3x^2 + 7x + 2$	**(b)**	$2a^2 + 5a + 2$	**(c)**	$3c^2 + 8c + 5$
(d)	$2p^2 + 11p + 9$	**(e)**	$2y^2 + 11y + 5$	**(f)**	$3d^2 + 11d + 6$
(g)	$5q^2 + 9q + 4$	**(h)**	$4b^2 + 8b + 3$	**(i)**	$6x^2 + 13x + 6$
(j)	$3a^2 + 14a + 15$	**(k)**	$10x^2 + 17x + 3$	**(l)**	$9c^2 + 6c + 1$
(m)	$6y^2 + 11y + 3$	**(n)**	$3b^2 + 5b + 2$	**(o)**	$8x^2 + 14x + 3$

15. Factorise the following quadratic expressions:

(a)	$2x^2 - 7x + 3$	**(b)**	$2a^2 - 5a + 3$	**(c)**	$5p^2 - 17p + 6$
(d)	$5b^2 - 7b + 2$	**(e)**	$6x^2 - 7x + 2$	**(f)**	$4y^2 - 11y + 6$
(g)	$7c^2 - 29c + 4$	**(h)**	$4m^2 - 9m + 2$	**(i)**	$16a^2 - 10a + 1$
(j)	$8y^2 - 22y + 5$	**(k)**	$3p^2 - 37p + 12$	**(l)**	$4x^2 - 25x + 6$
(m)	$15a^2 - 16a + 4$	**(n)**	$24c^2 - 22c + 3$	**(o)**	$6b^2 - 35b + 36$

16. Factorise the following quadratic expressions:

(a)	$3x^2 - 2x - 1$	**(b)**	$2a^2 - a - 3$	**(c)**	$4p^2 - p - 3$
(d)	$2c^2 + 7c - 4$	**(e)**	$6y^2 - 11y - 2$	**(f)**	$3w^2 + 10w - 8$
(g)	$3m^2 + 2m - 5$	**(h)**	$4q^2 + 5q - 6$	**(i)**	$6b^2 + 7b - 20$
(j)	$4t^2 - 4t - 3$	**(k)**	$12z^2 + 16z - 3$	**(l)**	$4d^2 - 4d - 15$
(m)	$7s^2 - 27s - 4$	**(n)**	$15x^2 + 16x - 15$	**(o)**	$36v^2 + v - 2$
(p)	$3v^2 + 10v + 7$	**(q)**	$2l^2 - 11l + 5$	**(r)**	$12m^2 - 31m + 7$
(s)	$3n^2 - 19v + 28$	**(t)**	$4b^2 - 20b + 25$	**(u)**	$9c^2 + 18c + 8$
(v)	$3q^2 + 14q - 5$	**(w)**	$6a^2 + a - 12$	**(x)**	$8b^2 - 2b - 15$
(y)	$12m^2 - 8m - 15$	**(z)**	$2n^2 - n - 28$		

17. Fully factorise these expressions:

(a)	$3x^2 - 3$	**(b)**	$2p^2 + 12p + 10$	**(c)**	$9x^2 - 36$
(d)	$5x^2 + 25x + 30$	**(e)**	$ax^2 + 5ax + 6a$	**(f)**	$3y^2 - 12y - 15$
(g)	$15c^2 + 27c + 12$	**(h)**	$16b^2 + 28b + 6$	**(i)**	$9q^2 + 33q + 18$
(j)	$10s^2 - 35s + 15$	**(k)**	$8m^2 - 20m + 12$	**(l)**	$8a^2 - 36a + 36$
(m)	$4t^2 + 2t - 56$	**(n)**	$90d^2 - 60d - 80$	**(o)**	$400x^2 - 4$

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Solutions

https://www.national5maths.co.uk/free-national-5-maths-2/

FACTORISING an ALGEBRAIC EXPRESSION

1.	**(a)**	$2(x + y)$	**(b)**	$3(c + d)$	**(c)**	$6(s + t)$	**(d)**	$12(x + y)$
	(e)	$9(a + b)$	**(f)**	$8(b + c)$	**(g)**	$5(p + q)$	**(h)**	$7(g + h)$
	(i)	$4(m + n)$	**(j)**	$9(e + f)$	**(k)**	$13(j + k)$	**(l)**	$14(v + w)$
2.	**(a)**	$2(x + 2)$	**(b)**	$3(d + 3)$	**(c)**	$3(2s + 1)$	**(d)**	$4(3x + 1)$
	(e)	$3(2 + 3a)$	**(f)**	$2(b + 4)$	**(g)**	$5(y + 2)$	**(h)**	$5(2 + 3c)$
	(i)	$4(3x + 4)$	**(j)**	$6(3m + 4)$	**(k)**	$6(5 + 6a)$	**(i)**	$7(2y + 3)$
3.	**(a)**	$3(x – 2)$	**(b)**	$4(y – 2)$	**(c)**	$8(2 – a)$	**(d)**	$5(2c – 3)$
	(e)	$3(3s – 4)$	**(f)**	$2(b – 7)$	**(g)**	$4(3x – 5)$	**(h)**	$11(2m – 3)$
	(i)	$5(3x – 2)$	**(j)**	$6(3 – 2y)$	**(k)**	$5(5b – 4)$	**(l)**	$6(3d – 5)$
4.	**(a)**	$2(a + 2b)$	**(b)**	$2(5x – 6y)$	**(c)**	$6(3m + 4n)$	**(d)**	$5(2c + 3d)$
	(e)	$3(2a – 3x)$	**(f)**	$6(3s – 2t)$	**(g)**	$3(4x + 5y)$	**(h)**	$7(2a – b)$
	(i)	$5(5c + 2d)$	**(j)**	$3(3b – 5y)$	**(k)**	$6(3x + 4y)$	**(i)**	$2(3a + 14b)$

5.	**(a)**	$a_(x + y)$	**(b)**	$x(y^2 + a^2)$	**(c)**	$p(qr + st)$
	(d)	$a(xy – bc)$	**(e)**	$p(q + 1)$	**(f)**	$y(y + 1)$
	(g)	$a(a – b)$	**(h)**	$b(a – c)$	**(i)**	$n(n – 3)$
	(j)	$y\,(x + y)$	**(k)**	$ab(c – d)$	**(l)**	$fg(h – e)$
6.	**(a)**	$2a(x + 3)$	**(b)**	$3y(1 + 3y)$	**(c)**	$8a(3 – 2b)$
	(d)	$pq(q – 1)$	**(e)**	$3x(4y – 3z)$	**(f)**	$2b(3b – 2)$
	(g)	$3a(a + 9h)$	**(h)**	$5ab(3c + 4d)$	**(i)**	$3s^2(s – 3)$
	(j)	$2x(7 – 6yz)$	**(k)**	$5bc(2b – 3d)$	**(l)**	$2\pi r(r + h)$
7.	**(a)**	$a(p + q – r)$	**(b)**	$2(a + b + c)$	**(c)**	$2(3e – f + 2g)$
	(d)	$p(p + q + x)$	**(e)**	$3b(a – 2c – 3d)$	**(f)**	$\frac{1}{2}\, h(a + b + c)$
	(g)	$x(5x – 8y + 5)$	**(h)**	$2a(2c + 3d – 5a)$	**(i)**	$5p(3p + 2q + 4s)$
8.	**(a)**	$(a – b)(a + b)$	**(b)**	$(x – y)(x + y)$	**(c)**	$(p – q)(p + q)$
	(d)	$(s – t)(s + t)$	**(e)**	$(a – 3)(a + 3)$	**(f)**	$(x – 2)(x + 2)$
	(g)	$(p – 9)(p + 9)$	**(h)**	$(c – 5)(c + 5)$	**(i)**	$(b – 1)(b + 1)$
	(j)	$(y – 4)(y + 4)$	**(k)**	$(m – 5)(m + 5)$	**(l)**	$(a – 3)(a + 3)$
	(m)	$(6 – d)(6 + d)$	**(n)**	$(2 – q)(2 + q)$	**(o)**	$(7 – w)(7 + w)$
	(p)	$(x – 8)(x + 8)$				

9.	**(a)**	$(a – 2b)(a + 2b)$	**(b)**	$(x – 5y)(x + 5y)$	**(c)**	$(p – 8q)(p + 8q)$

	(d)	$(4c - d)(4c + d)$	**(e)**	$(9 - 2g)(9 + 2g)$	**(f)**	$(6w - y)(6w + y)$
	(g)	$(2a - 1)(2a + 1)$	**(h)**	$(g - 9h)(g + 9h)$	**(i)**	$(7x - y)(7x + y)$
	(j)	$(3c - 4d)(3c + 4d)$	**(k)**	$(2p - 3q)(2p + 3q)$	**(l)**	$(b - 10c)(b + 10c)$
	(m)	$(5 - 4a)(5 + 4a)$	**(n)**	$(2d - 11)(2d + 11)$	**(o)**	$(15 - 7k)(15 + 7k)$
	(p)	$(3x - 0{\cdot}5)(3x + 0{\cdot}5)$				
10.	**(a)**	$2(a - b)(a + b)$	**(b)**	$5(p - 1)(p + 1)$	**(c)**	$5(3 - x)(3 + x)$
	(d)	$4(d - 3)(d + 3)$	**(e)**	$2(y - 5)(y + 5)$	**(f)**	$4(b - 5)(b + 5)$
	(g)	$3(q - 3)(q + 3)$	**(h)**	$8(a - 2b)(a + 2b)$	**(i)**	$a(b - 8)(b + 8)$
	(j)	$x(y - 5)(y + 5)$	**(k)**	$ab(c - 1)(c + 1)$	**(l)**	$2(2p - 5q)(2p + 5q)$
	(m)	$2(x - 1{\cdot}2)(x + 1{\cdot}2)$	**(n)**	$a(k - 11)(k + 11)$	**(o)**	$2{\cdot}5(2s - 1(2s + 1)$
	(p)	$½(y - 30)(y + 30)$				
11.	**(a)**	$(x + 1)(x + 2)$	**(b)**	$(a + 1)(a + 1)$	**(c)**	$(y + 1)(y + 4)$
	(d)	$(x + 7)(a + 1)$	**(e)**	$(x + 3)(x + 3)$	**(f)**	$(b + 6)(b + 2)$
	(g)	$(a + 7)(a + 2)$	**(h)**	$(w + 1)(a + 9)$	**(i)**	$(d + 5)(d + 2)$
	(j)	$(x + 7)(x + 3)$	**(k)**	$(p + 4)(p + 5)$	**(l)**	$(c + 4)(c + 6)$
	(m)	$(s + 6)(s + 6)$	**(n)**	$(x + 7)(x + 4)$	**(o)**	$(y + 5)(y + 5)$
12.	**(a)**	$(a - 5)(a - 3)$	**(b)**	$(x - 1)(x - 8)$	**(c)**	$(a - 6)(a - 3)$
	(d)	$(y - 2)(y - 2)$	**(e)**	$(b - 5)(b - 1)$	**(f)**	$(x - 14)(x - 1)$
	(g)	$(c - 2)(c - 8)$	**(h)**	$(x - 6)(x - 1)$	**(i)**	$(y - 4)(y - 8)$
	(j)	$(p - 8)(p - 3)$	**(k)**	$(a - 9)(a - 4)$	**(l)**	$(x - 3)(x - 12)$
	(m)	$(b - 1)(b - 3)$	**(n)**	$(q - 10)(q - 1)$	**(o)**	$(a - 4)(a - 3)$
13.	**(a)**	$(b + 5)(b - 2)$	**(b)**	$(x + 7)(x - 1)$	**(c)**	$(y + 2)(y - 3)$
	(d)	$(a + 4)(a - 5)$	**(e)**	$(q + 4)(q - 2)$	**(f)**	$(x + 2)(x - 10)$
	(g)	$(d + 7)(d - 3)$	**(h)**	$(c + 12)(c - 3)$	**(i)**	$(p + 3)(p - 8)$
	(j)	$(y + 1)(y - 8)$	**(k)**	$(a + 6)(a - 1)$	**(l)**	$(x + 4)(x - 9)$
	(m)	$(b + 1)(b - 5)$	**(n)**	$(s + 6)(s - 4)$	**(o)**	$(d + 8)(d - 2)$
14.	**(a)**	$(3x + 1)(x + 2)$	**(b)**	$(2a + 1)(a + 2)$	**(c)**	$(3c + 5)(c + 1)$
	(d)	$(2p + 9)(p + 1)$	**(e)**	$(2y + 1)(y + 5)$	**(f)**	$(3d + 2)(d + 3)$
	(g)	$(5q + 4)(q + 1)$	**(h)**	$(2b + 3)(2b + 1)$	**(i)**	$(3x + 2)(2x + 3)$
	(j)	$(3a + 5)(a + 3)$	**(k)**	$(5x + 1)(2x + 3)$	**(l)**	$(3c + 1)(3c + 1)$
	(m)	$(3y + 1)(2y + 3)$	**(n)**	$(3b + 2)(b + 1)$	**(o)**	$(4x + 1)(2x + 3)$

15. **(a)** $(2x - 1)(x - 3)$ **(b)** $(2a - 3)(a - 1)$ **(c)** $(5p - 2)(p - 3)$

(d) $(5b - 2)(b - 1)$ **(e)** $(3x - 2)(2x - 1)$ **(f)** $(4y - 3)(y - 2)$

(g) $(7c - 1)(c - 4)$ **(h)** $(4m - 1)(m - 2)$ **(i)** $(8a - 1)(2a - 1)$

(j) $(4y - 1)(2y - 5)$ **(k)** $(3p - 1)(p - 12)$ **(l)** $(4x - 1)(x - 6)$

(m) $(5a - 2)(3a - 2)$ **(n)** $(6c - 1)(4c - 3)$ **(o)** $(3b - 4)(2b - 9)$

16. **(a)** $(3x + 1)(x - 1)$ **(b)** $(a + 1)(2a - 3)$ **(c)** $(4p + 3)(p - 1)$

(d) $(c + 4)(2c - 1)$ **(e)** $(6y + 1)(y - 2)$ **(f)** $(3w - 2)(w + 4)$

(g) $(3m + 5)(m - 1)$ **(h)** $(q + 2)(4q - 3)$ **(i)** $(2b + 5)(3b - 4)$

(j) $(2t + 1)(2t - 3)$ **(k)** $(2z + 3)(6z - 1)$ **(l)** $(2d + 3)(2d - 5)$

(m) $(7s + 1)(s - 4)$ **(n)** $(3x + 5)(5x - 3)$ **(o)** $(4v + 1)(9v - 2)$

(p) $(3v + 7)(v + 1)$ **(q)** $(2l - 1)(l - 5)$ **(r)** $(3m - 7)(4m - 1)$

(s) $(3n - 7)(n - 4)$ **(t)** $(2b - 5)(2b - 5)$ **(u)** $(3c + 4)(3c + 2)$

(v) $(3q - 1)(q + 5)$ **(w)** $(2a + 3)(3a - 4)$ **(x)** $(4b + 5)(2b - 3)$

(y) $(6m + 5)(2m - 3)$ **(z)** $(2n + 7)(n - 4)$

17. **(a)** $3(x - 1)(x + 1)$ **(b)** $2(p + 5)(p + 1)$ **(c)** $9(x - 2)(x + 2)$

(d) $5(x + 2)(x + 3)$ **(e)** $a(x + 2)(x + 3)$ **(f)** $3(y - 5)(y + 1)$

(g) $3(5c + 4)(c + 1)$ **(h)** $2(4b + 1)(2b + 3)$ **(i)** $3(3q + 2)(q + 3)$

(j) $5(2s - 1)(s - 3)$ **(k)** $4(2m - 3)(m - 1)$ **(l)** $4(2a - 3)(a - 3)$

(m) $2(2t - 7)(t + 4)$ **(n)** $10(3d + 2)(3d - 4)$ **(o)** $4(10x - 1)(10x + 1)$