M1.

(a) $2x^2 - 6x + x - 3$

Must be 4 terms
Allow one error
May be in a grid

M1

$2x^2 - 5x - 3$

Do not ignore fw

A1

Additional Guidance

$2x^2 - 5x + 3$

M1A0

$2x^2 - 5x + - 3$

M1A0

$2x^2 - 4x - 3$

M0A0

For method mark the four terms may be e.g. in a grid with correct negative signs

(b) $(y - 4)(y + 6)$

B1 for $(y + a)(y + b)$ such that
$ab = -24$ or $a + b = 2$
or B1 for
$y(y + 6) - 4(y + 6)$
or $y(y - 4) + 6(y - 4)$

B2

Additional Guidance

$(y + 4)(y - 6)$

B1

$(y - 12)(y + 2)$

B1

$(y + 13)(y - 11)$

B1

$y(y + 6)$

B0

Condone use of x or another letter

(c) $32x^5\ y^{15}$

B1 for two terms correct in a product

B2

Additional Guidance
Penalise multiplication signs for B2
+ sign(s) in answer scores B0
Mark final answer

$32 \times x^5 \times y^{15}$

B1

$32 \times 5x^5 \times y^{15}$

B1

$32x^5\ y^8$

B1

$32xy^{15}$

B1

$32 + x^5 + y^{15}$

B0

[6]

M2.

$(x + 2)(x + 7)$

Either order

B1 for $(x + a)(x + b)$ where $a + b = 9$ or $ab = \pm 14$

B2

[2]

M3.

(a) Correct line with $-1\frac{1}{2}$ labelled

B1 For line through (3, 0) without $-1\frac{1}{2}$ labelled

or

for line with positive gradient through (0, −1½) (labelled), but not passing through (3, 0)

B2

(b) $x(x-3)=\frac{(x-3)}{2}$

oe e.g. $2x^2 - 6x = x - 3$ *or* $2x^2 - 7x + 3 = 0$

or $(2x - 1)(x - 3) = 0$ *or* $x^2 - 3.5x + 1.5 = 0$

M1

$x=\frac{1}{2}$

A1

[4]

M4. $(2x - y)(2x + y)$

B1 $(2x - y)(2x - y)$ *or* $(2x + y)(2x + y)$

or $(2x - y)^2$ *or* $(2x + y)^2$

or $(4x + y)(x - y)$ *or* $(4x - y)(x + y)$

B2

[2]

M5. $(3m + k)(3m - k)$

B1 for $(9m \ldots k)(m \ldots k)$

or $(3m + k)(3m + k)$

or $(3m + k)^2$ *or* $(3m - k)(3m - k)$

or $(3m - k)^2$

B2

[2]

M6.(a) $2x^2 + x - 4x - 2$

4 terms, allow one error but must have a term in x^2

M1

$2x^2 + x - 4x - 2$

A1

$2x^2 - 3x - 2$ *oe*

ft their 4 terms if M1 awarded

SC1 answer of

$2x^2 - 5x - 2$ or $2x^2 + 3x - 2$ or

$2x^2 - 3x + 2$

without working worth at least M1

A1 fit

(b) $3(x^2 - 16y^2)$

M1

$(3)(x + ay)(x + by)$

where $ab = -16$

M1

$3(x - 4y)(x + 4y)$ *oe*

A1

Alternative method

$(3x + ay)(x + by)$

where $ab = -48$

M1

$(3x + 12y)(x - 4y)$

or

$(3x - 12y)(x + 4y)$

M1

$3(x - 4y)(x + 4y)$ *oe*

A1

[6]

M7. (a) $(n + a)(n + b)$

Where $ab = \pm 6$

M1

$(n + 1)(n + 6)$

A1

(b) Sight of 11×16

Use of factor tree with one pair of factors of which one is prime or repeated division by primes

M1

$11 \times 2 \times 2 \times 2 \times 2$ (×1)

A1

11×2^4

A1

[5]