MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 31

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Factorise $5x + 15$ *(common factor)* (1)

HCF is $5 \rightarrow \mathbf{5(x + 3)}$ ✓ (1)

2 Factorise $8a^2b - 12ab$ *(common factor)* (2)

HCF is $4ab \rightarrow \mathbf{4ab(2a - 3)}$ ✓✓ (2)

3 Factorise $x^2 - 49$ *(difference of squares)* (1)

$\sqrt{x^2} = x$, $\sqrt{49} = 7 \rightarrow \mathbf{(x + 7)(x - 7)}$ ✓ (1)

4 Factorise $25x^2 - 9$ *(difference of squares)* (2)

$\sqrt{25x^2} = 5x$, $\sqrt{9} = 3 \rightarrow \mathbf{(5x + 3)(5x - 3)}$ ✓✓ (2)

5 Factorise $3x^2 - 27$ *(common factor first)* (2)

$= 3(x^2 - 9) = \mathbf{3(x + 3)(x - 3)}$ ✓✓ (2)

6 Factorise $x^2 + 9x + 20$ *(trinomial, both +)* (2)

Product 20, sum $9 \rightarrow 4$ and $5 \rightarrow \mathbf{(x + 4)(x + 5)}$ ✓✓ (2)

7 Factorise $x^2 - 8x + 15$ *(trinomial, c + b −)* (2)

Product 15, sum $-8 \rightarrow -3$ and $-5 \rightarrow \mathbf{(x - 3)(x - 5)}$ ✓✓ (2)

8 Factorise $x^2 + 2x - 15$ *(trinomial, c −)* (2)

Product -15, sum $+2 \rightarrow +5$ and $-3 \rightarrow \mathbf{(x + 5)(x - 3)}$ ✓✓ (2)

9 Factorise $x^2 - 2x - 15$ *(trinomial, c −)* (2)

Product -15, sum $-2 \rightarrow -5$ and $+3 \rightarrow \mathbf{(x - 5)(x + 3)}$ ✓✓ (2)

10 Factorise $2x^2 + 14x + 20$ *(common factor, then trinomial)* **(3)**

> $= 2(x^2 + 7x + 10)$; product 10, sum $7 \rightarrow 2$ and $5 \rightarrow$ $\mathbf{2(x + 2)(x + 5)}$ ✓✓✓ (3)

11 Factorise $5x^2 - 5x - 30$ *(common factor, then trinomial)* **(3)**

> $= 5(x^2 - x - 6)$; product -6, sum $-1 \rightarrow -3$ and $+2 \rightarrow$ $\mathbf{5(x - 3)(x + 2)}$ ✓✓✓ (3)

12 Factorise $x^2y - 9y$ *(common factor, then difference of squares)* **(2)**

> $= y(x^2 - 9) =$ $\mathbf{y(x + 3)(x - 3)}$ ✓✓ (2)

13 Factorise $a^2 - 6a + 9$ *(trinomial)* **(2)**

> Product 9, sum $-6 \rightarrow -3$ and $-3 \rightarrow (a - 3)(a - 3) =$ $\mathbf{(a - 3)^2}$ ✓✓ (2)

14 Factorise $4x^2 - 100$ *(mixed)* **(2)**

> $= 4(x^2 - 25) =$ $\mathbf{4(x + 5)(x - 5)}$ ✓✓ (2)

15 Factorise $2x^2 - 2x - 24$ *(mixed)* **(3)**

> $= 2(x^2 - x - 12) =$ $\mathbf{2(x - 4)(x + 3)}$ ✓✓✓ (3)

TOTAL: 31 marks

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