Factorising Quadratics (monic)

Exam Style Questions

1. Factorise $x^2 + 5x + 6$

$3 \times 2 = 6$

$3 + 2 = 5$

$(x+3)(x+2)$ ..... (2 marks)

---

2. Factorise $x^2 + 7x + 12$

$4 \times 3 = 12$

$4 + 3 = 7$

$(x+4)(x+3)$ ..... (2 marks)

---

3. Factorise $x^2 + 10x + 24$

$6 \times 4 = 24$

$6 + 4 = 10$

$(x+6)(x+4)$ ..... (2 marks)

---

4. Factorise $x^2 + 6x + 9$

$3 \times 3 = 9$
$3 + 3 = 6$

$= (x+3)(x+3)$
$= (x+3)^2$

$(x+3)^2$ ..... (2 marks)

---

5. Factorise $x^2 - 4x + 3$

$-3 \times -1 = 3$
$-3 + -1 = -4$

$(x-3)(x-1)$ ..... (2 marks)

---

6. Factorise $x^2 + x - 12$

$4 \times -3 = -12$
$4 + -3 = 1$

$(x+4)(x-3)$ ..... (2 marks)

---

7. Factorise $x^2 - x - 56$

$-8 \times 7 = -56$

$-8 + 7 = -1$

$(x-8)(x+7)$ ..... (2 marks)

---

8. Factorise $x^2 - 6x + 8$

$-4 \times -2 = 8$

$-4 + -2 = -6$

$(x-4)(x-2)$ ..... (2 marks)

---

9. Factorise $x^2 - 3x - 18$

$-6 \times 3 = -18$

$-6 + 3 = -3$

$(x-6)(x+3)$ ..... (2 marks)

---

10. Factorise $x^2 - 5x - 84$

$-12 \times 7 = -84$

$-12 + 7 = -5$

$(x-12)(x+7)$ (2 marks)

---

11. Factorise $x^2 - 12x + 36$

$-6 \times -6 = 36$

$-6 + -6 = -12$

$= (x-6)(x-6)$

$= (x-6)^2$

$(x-6)^2$ (2 marks)

---

12. Factorise $x^2 - 9$

$3 \times -3 = -9$

$3 + -3 = 0$

$(x+3)(x-3)$ (2 marks)

---

13. Factorise $x^2 - 64$

$(x+8)(x-8)$ (2 marks)

---

14. Factorise $x^2 - 169$

$(x+13)(x-13)$ (2 marks)

---

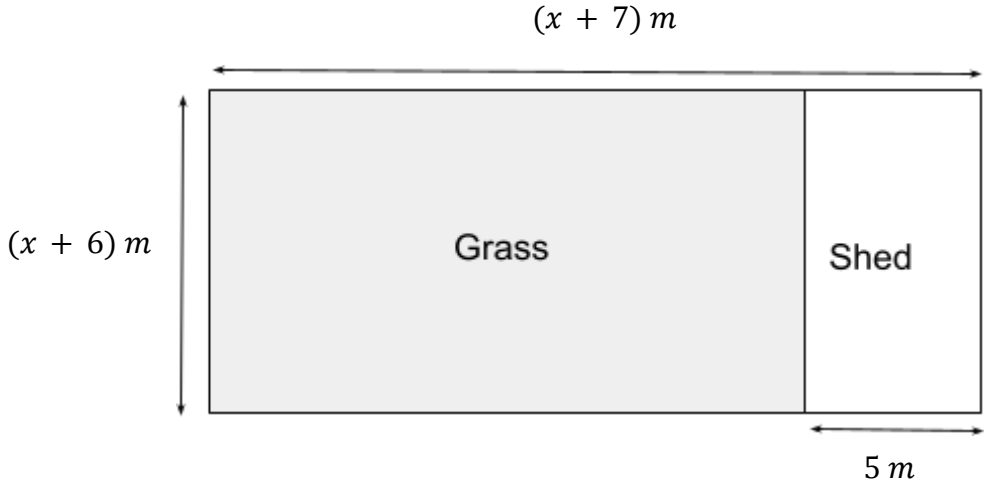
15. Factorise $x^2 - 196$

$(x+14)(x-14)$ (2 marks)

---

16. Anita's garden is rectangular in shape and has length $(x + 7)\ m$ and width $(x + 6)\ m$.
At the end of her garden, she has a shed of length $(x + 6)\ m$ and width $5\ m$.
The rest of her garden is made up of grass.

Show that the area of the grass can be written in the form $(x + a)(x + b)\ m^2$, where a and b are integers to be determined.



Area garden = $(x+6)(x+7) = x^2 + 7x + 6x + 42$

$= x^2 + 13x + 42$

Area Shed = $5(x+6) = 5x + 30$

Area grass = $(x^2 + 13x + 42) - (5x + 30)$

$= x^2 + 13x + 42 - 5x - 30$

$= x^2 + 8x + 12$

$= (x + 6)(x + 2)\ m^2$

$(x + 6)(x + 2)$ (5 marks)