1. **Factor completely: $x^2 - 25$**
   $(x)^2 - (5)^2$
   Answer: $(x - 5)(x + 5)$

2. **Factor completely: $9x^2 - 1$**
   $(3x)^2 - (1)^2$
   Answer: $(3x - 1)(3x + 1)$

3. **Factor completely: $x^2 - 16$**
   $(x)^2 - (4)^2$
   Answer: $(x - 4)(x + 4)$

4. **Factor completely: $x^2 - 4$**
   $(x)^2 - (2)^2$
   Answer: $(x - 2)(x + 2)$

5. **Factor completely: $x^2 - 9$**
   $(x)^2 - (3)^2$
   Answer: $(x - 3)(x + 3)$

6. **Factor completely: $x^2 - 49$**
   $(x)^2 - (7)^2$
   Answer: $(x - 7)(x + 7)$

7. **Factor completely: $4x^2 - 9$**
   $(2x)^2 - (3)^2$
   Answer: $(2x - 3)(2x + 3)$

8. **Factor completely: $16x^2 - 9$**
   $(4x)^2 - (3)^2$
   Answer: $(4x - 3)(4x + 3)$

9. **Factor completely: $x^2 - 121$**
   $(x)^2 - (11)^2$
   Answer: $(x - 11)(x + 11)$

10. **Factor completely: $4x^2 - 81$**
    $(2x)^2 - (9)^2$
    Answer: $(2x - 9)(2x + 9)$

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11. Factor completely: $x^2 - 64$

$(x)^2 - (8)^2$

Answer: $(x - 8)(x + 8)$

12. Factor completely: $25x^2 - 64$

$(5x)^2 - (8)^2$

Answer: $(5x - 8)(5x + 8)$

13. Factor completely: $x^2 - 100$

$(x)^2 - (10)^2$

Answer: $(x - 10)(x + 10)$

14. Factor completely: $25x^2 - 1$

$(5x)^2 - (1)^2$

Answer: $(5x - 1)(5x + 1)$

15. Factor completely: $25x^2 - 4$

$(5x)^2 - (2)^2$

Answer: $(5x - 2)(5x + 2)$

16. Factor completely: $25x^2 - 49$

$(5x)^2 - (7)^2$

Answer: $(5x - 7)(5x + 7)$

17. Factor completely: $4x^2 - 25$

$(2x)^2 - (5)^2$

Answer: $(2x - 5)(2x + 5)$

18. Factor completely: $4x^2 - 121$

$(2x)^2 - (11)^2$

Answer: $(2x - 11)(2x + 11)$

19. Factor completely: $49x^2 - 4$

$(7x)^2 - (2)^2$

Answer: $(7x - 2)(7x + 2)$

20. Factor completely: $49x^2 - 9$

$(7x)^2 - (3)^2$

Answer: $(7x - 3)(7x + 3)$

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21. Factor completely: $2x^2 - 50$ ★ challenge

$2(x^2 - 25)$

Answer: $2(x - 5)(x + 5)$

22. Factor completely: $x^3 - 49x$ ★ challenge

$x(x^2 - 49)$

Answer: $x(x - 7)(x + 7)$

23. Factor completely: $x^2 + 36$ ★ challenge

$x^2 + 0x + 36$: need $\times = 36$ and $+ = 0$

Answer: does not factor

24. Factor completely: $x^4 - 16$ ★ challenge

$(x^2)^2 - (4)^2$

$(x^2 - 4)(x^2 + 4)$

Answer: $(x - 2)(x + 2)(x^2 + 4)$

25. Use difference of squares to find 31×29 without a calculator. (Hint: $31 \times 29 = (30 + 1)(30 - 1)$.) ★ challenge

$30^2 - 1^2$

Answer: 899

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