

Factorise fully (Q1-11)

1 $21 - 56y =$

2 $-6a - 9 =$

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

4 $4 - 4x + cx - c$
 $=$

5 $64 - 36m^2$
 $=$

6 $x^4 - y^4$
 $=$

7 $x^2 + 4x - 77$
 $=$

8 $3x^2 - 10x + 8$
 $=$

9 $-10x^2 + x + 2$
 $=$

10 $a^3 - 1 =$

11 $8x^3 + 27$
 $=$

12 $\frac{2x + 4}{3x + 6} =$

13 $\frac{m^2 + 2m - 8}{m^2 - 4} =$

14 $\frac{x-y}{4} \times \frac{8}{x^2-y^2}$
 $=$

15 $\frac{2}{a-3} \div \frac{6}{a^2-9}$
 $=$

16 $\frac{2}{a+1} + \frac{1}{a-3}$

17 $\frac{3}{2a} + \frac{5}{3a}$

18 $x-y - \frac{x^2}{x+y}$

19 $\frac{x^2}{x^2+3x+2} - \frac{2x}{x+2}$

20 Factorise $14x^2 - 80x - 24$

Factorise fully (Q1 → 11)

$$\underline{1} \quad 21 - 56y = 7(3 - 8y)$$

$$\underline{2} \quad -6a - 9 = -3(2a + 3)$$

$$\underline{3} \quad (a+b)^2 + x(a+b) \\ = (a+b)(a+b+x)$$

$$\underline{4} \quad 4 - 4x + cx - c \\ = 4(1-x) + c(x-1) \\ = (1-x)(4-c)$$

$$\underline{5} \quad 64 - 36m^2 \\ = (8-6m)(8+6m) \\ = 4(4-3m)(4+3m)$$

$$\underline{6} \quad x^4 - y^4 \\ = (x^2 - y^2)(x^2 + y^2) \\ = (x-y)(x+y)(x^2 + y^2)$$

$$\underline{7} \quad x^2 + 4x - 77 \\ = (x+11)(x-7)$$

$$\underline{8} \quad 3x^2 - 10x + 8 \\ = (3x-4)(x-2)$$

$$\underline{9} \quad -10x^2 + x + 2 \\ = (5x+2)(-2x+1)$$

$$\underline{10} \quad a^3 - 1 = (a-1)(a^2 + a + 1)$$

$$\underline{11} \quad 8x^3 + 27 = (2x)^3 + (3)^3 \\ = (2x+3)(4x^2 - 6x + 9)$$

$$\underline{12} \quad \frac{2x+4}{3x+6} = \frac{2(x+2)}{3(x+2)} = \frac{2}{3}$$

$$\underline{13} \quad \frac{m^2 + 2m - 8}{m^2 - 4} = \frac{(m+4)(m-2)}{(m-2)(m+2)} \\ = \frac{(m+4)}{(m+2)}$$

$$\underline{14} \quad \frac{x-y}{4} \times \frac{8}{x^2-y^2} \\ = \frac{(x-y)}{4} \cdot \frac{8}{(x-y)(x+y)} = \frac{2}{x+y}$$

$$\underline{15} \quad \frac{2}{a-3} \div \frac{6}{a^2-9} \\ = \frac{2}{(a-3)} \cdot \frac{(a-3)(a+3)}{6} = \frac{a+3}{3}$$

$$\underline{16} \quad \frac{2}{a+1} + \frac{1}{a-3} \\ = \frac{2(a-3) + (a+1)}{(a+1)(a-3)} = \frac{3a-5}{(a+1)(a-3)}$$

$$\underline{17} \quad \frac{3}{2a} + \frac{5}{3a} \\ = \frac{9+10}{6a} = \frac{19}{6a}$$

$$\underline{18} \quad \frac{x-y}{x+y} - \frac{x^2}{x+y} \\ = \frac{(x-y)(x+y) - x^2}{(x+y)} = \frac{-y^2}{x+y}$$

$$\underline{19} \quad \frac{x^2}{x^2+3x+2} - \frac{2x}{x+2} \left(= \frac{-x}{x+1} \right) \\ = \frac{x^2 - 2x(x+1)}{(x+2)(x+1)} = \frac{-x^2-2x}{(x+2)(x+1)}$$

$$\underline{20} \quad \text{Factorise } 14x^2 - 80x - 24$$