

Feuille de travail 1 (3.8 3.6 Retour sur la factorisation et radicaux mixtes)

Factorise complètement.

1.  $3a^2 + 6a$

$3a(a+2)$

2.  $2x^2 - 8x$

$2x(x-4)$

3.  $25a^2 - 9$

$(5a-3)(5a+3)$

4.  $x^2 + 7x + 12$   $\frac{3}{3} \times \frac{4}{4} = 12$   
 $x^2 + 3x + 4x + 12$   $\frac{3}{3} + \frac{4}{4} = 7$   
 $x(x+3) + 4(x+3)$   
 $(x+3)(x+4)$

5.  $3a^2 - 3$   
 $3(a^2 - 1)$   
 $3(a+1)(a-1)$

6.  $y^2 - 11y + 28$   $\frac{-4}{-4} \times \frac{-7}{-7} = 28$   
 $y^2 - 4y + 7y + 28$   $\frac{-4}{-4} + \frac{-7}{-7} = -11$   
 $y(y-4) - 7(y-4)$   
 $(y-4)(y-7)$

7.  $16x^2 - 8x + 1$   $\frac{-4}{-4} \times \frac{-4}{-4} = 16$   
 $16x^2 - 4x + 4x + 1$   $\frac{-4}{-4} + \frac{-4}{-4} = -8$   
 $4x(4x-1) - 1(4x-1)$   
 $(4x-1)^2$

8.  $2a^2 - a - 28$   $\frac{-8}{-8} \times \frac{7}{7} = -56$   
 $2a^2 - 8a + 7a - 28$   $\frac{-8}{-8} + \frac{7}{7} = -1$   
 $2a(a-4) + 7(a-4)$   
 $(a-4)(2a+7)$

9.  $4x^2 - 11x + 6$   $\frac{-8}{-8} \times \frac{-3}{-3} = 24$   
 $4x^2 - 8x + 3x + 6$   $\frac{-8}{-8} + \frac{-3}{-3} = -11$   
 $4x(x-2) - 3(x-2)$   
 $(x-2)(4x-3)$

10.  $-1 + 9k^2$   
 $9k^2 - 1$   
 $(3k-1)(3k+1)$

11.  $1 + 18y + 32y^2$   
 $32y^2 + 18y + 1$   $\frac{2}{2} \times \frac{16}{16} = 32$   
 $32y^2 + 16y + 2y + 1$   $\frac{2}{2} + \frac{16}{16} = 18$   
 $16y(2y+1) + 1(2y+1)$   
 $(2y+1)(16y+1)$

12.  $56x^2 + 9x - 2$   $\frac{16}{16} \times \frac{-7}{-7} = -112$   
 $56x^2 - 7x + 16x - 2$   $\frac{16}{16} + \frac{-7}{-7} = 9$   
 $7x(8x-1) + 2(8x-1)$   
 $(8x-1)(7x+2)$

13.  $-16 + 9x^2$   
 $9x^2 - 16$   
 $(3x+4)(3x-4)$

14.  $m^4 - 16$   
 $(m^2+4)(m^2-4)$   
 $(m^2+4)(m-2)(m+2)$

15.  $3a^2 - 21a + 36$   
 $3(a^2 - 7a + 12)$   $\frac{-4}{-4} \times \frac{-3}{-3} = 12$   
 $3[a^2 - 4a - 3a + 12]$   $\frac{-4}{-4} + \frac{-3}{-3} = -7$   
 $3[a(a-4) - 3(a-4)]$   
 $3(a-4)(a-3)$

16.  $8 - 14y + 5y^2$   $\frac{-10}{-10} \times \frac{-4}{-4} = 40$   
 $5y^2 - 10y + 8$   $\frac{-10}{-10} + \frac{-4}{-4} = -14$   
 $5y^2 - 10y - 4y + 8$   
 $5y(y-2) - 4(y-2)$   
 $(y-2)(5y-4)$

17.  $125x^2 - 5x$   
 $5x(25x-1)$

18.  $m^2 - m - 36$   
 Ne se factorise pas

Écris les radicaux suivants en radicaux mixtes, si possible.

1.  $\sqrt{32} = 4\sqrt{2}$  2.  $\sqrt{125} = 5\sqrt{5}$  3.  $\sqrt{68} = 2\sqrt{17}$  4.  $\sqrt{847} = 11\sqrt{7}$  5.  $\sqrt{85}$  6.  $\sqrt{81} = 9$

7.  $\sqrt{\frac{1}{4}} = \frac{1}{2}$  8.  $\sqrt{\frac{3}{7}} = \frac{\sqrt{21}}{7}$  9.  $\sqrt{\frac{9}{5}} = \frac{3\sqrt{5}}{5}$  10.  $\sqrt{\frac{7}{100}} = \frac{\sqrt{7}}{10}$