BRIDGE Day 2
Independent Practice
Solving equations with surds: no calculators!

KING'S
MATHS
SCHOOL

1   Make x the subject of

a) $\dfrac{b}{x-b} = a$

b) $\dfrac{x+b}{x-b} = a$

c) $\dfrac{\sqrt{x}}{b-\sqrt{x}} = a$

d) $\dfrac{b}{x} = a$

e) $\dfrac{b}{x} + b = a$

f) $\dfrac{b}{x} + b = \dfrac{a}{x}$

2   Solve

a) $\sqrt{2}x + 12 = 8$

b) $\sqrt{2}x + 12 = \sqrt{8}x$

c) $\sqrt{2}x + 12 = 3x$

d) $\sqrt{2}x + 12 = \sqrt{3}x$

3   Solve

a) $3x - 2y = 12\sqrt{6}$
    $2x + 3y = -\sqrt{150}$

b) $\sqrt{3}x + 2y = 10$
    $x - \sqrt{3}y = \sqrt{75}$

4   Solve
a) $5x^2 + \sqrt{5}x - 12 = 0$ with the quadratic formula
b) $x^2 - \sqrt{72}x + 16 = 0$ by completing the square
c) $5x^2 + 9\sqrt{3}x - 6 = 0$ by factorising

5   Solve
a) $x - \dfrac{1}{x} = \sqrt{32}$

b) $\dfrac{1}{x-\sqrt{5}} + \dfrac{1}{x+\sqrt{5}} = \dfrac{1}{\sqrt{20}}$

6   Simplify the sums of the squares of the roots of

a) $x^2 - 4x + 1 = 0$
b) $x^2 - 4bx + 1 = 0$
c) $x^2 - 4bx + c = 0$