Section 2: The quadratic formula

Exercise level 2

1. Solve the following quadratic equations, where possible. Give answers in exact form.

   (i) $x^2+2x-2=0$ (ii) $x^2-3x+5=0$

   (iii) $2x^2+x-4=0$ (iv) $2x^2-5x-12=0$

   (v) $x^2-5x-3=0$ (vi) $3x^2+x+1=0$

   (vii) $4x^2+12x+9=0$ (viii) $4x^2+10x+5=0$

2. Solve the following equations, giving your answers in exact form.

   (i) $x=\frac{3}{x}-1$ (ii) $6\sqrt{x}-7=x$

3. A cylinder has height 20 cm and surface area 300 cm².
   Find the radius of the cylinder, to 3 s.f.

4. The equation $x^2+(3k+1)x+4k+13=0$ has a repeated root.
   Find the possible values of k.

5. What is the greatest possible value of k if the equation $2x^2-5x+k=0$ has at least one real root?