1. Express the following in the form $a\sqrt{2}$, where a is an integer:

a). $\sqrt{200}$ b). $\frac{12}{\sqrt{2}}$ c). $5\sqrt{8}-3\sqrt{2}$

2. Simplify:

a). $\frac{5}{2-\sqrt{3}}$ b). $\frac{(5+\sqrt{3})(5-\sqrt{3})}{\sqrt{22}}$

3. Expand and simplify:

$(\sqrt{3} + \sqrt{15})^2$

4. Simplify:

(i) $(3x^2y)^3$ (ii) $(\sqrt[3]{x})^6$

5. Solve $x^2 + 6x = 4$

Give your answers in the form $p \pm \sqrt{q}$, where p and q are integers.

6. For all values of x,

$x^2 - 6x + 15 = (x - p)^2 + q$

Find the value of p and the value of q.

7. Solve

$$\frac{x}{2x-3}+\frac{4}{x+1}=1$$

8. Solve

$$2x^2 + y^2 = 5$$

$$2x + y = 3$$

giving your answer in surd form.