3(ii) Suppose $7\sqrt{5}$ is rational

let $7\sqrt{5} = \frac{p}{q}$ where p, q are integers and $q \neq 0$

$\Rightarrow \sqrt{5} = \frac{p}{7q}$

LHS $= \sqrt{5}$ which is irrational

RHS $= \frac{p}{7q}$ which is rational

[$\because$ p is integer
$7q$ is integer by closure property of integers for multiplication
$7q \neq 0$ as $7 \neq 0, q \neq 0$]

$\therefore$ LHS $\neq$ RHS

our supposition is wrong

$7\sqrt{5}$ is irrational

3(iii) suppose $6+\sqrt{2}$ is rational

let $6+\sqrt{2} = \frac{p}{q}$ where p, q are integers and $q \neq 0$

$\Rightarrow \sqrt{2} = \frac{p}{q} - 6$

$\sqrt{2} = \frac{p-6q}{q}$

LHS $= \sqrt{2}$ which is irrational

RHS $= \frac{p-6q}{q}$ which is rational

[$\because$ $p-6q$ is integer by closure property of integers for mul. and subtraction
q is integer
$q \neq 0$]

$\therefore$ LHS $\neq$ RHS

our Supp is wrong

$6+\sqrt{2}$ is irrational