1. $8x^2+2x-3=0$

$D = b^2-4ac$

$= 2^2-4\times8\times(-3)$

$= 4+96$

$= 100$

$\because D>0$

$\therefore$ roots are real

$x = \frac{-b\pm\sqrt{D}}{2a}$

$= \frac{-2\pm\sqrt{100}}{2\times8}$

$= \frac{-2\pm10}{16}$

$x = \frac{-2+10}{16} = \frac{8}{16} = \frac{1}{2}$ | $x = \frac{-2-10}{16} = \frac{-12}{16} = \frac{-3}{4}$

NCERT Solutions by Dev Anoop Bathinda

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

$D = b^2-4ac$

$= 3^2-4\times(-2)2$

$= 9+16$

$= 25$

$\because D>0$ roots are real

$x = \frac{-b\pm\sqrt{D}}{2a}$

$= \frac{-3\pm\sqrt{25}}{2\times(-2)}$

$x = \frac{-3-5}{-4} = 2$ | $x = \frac{-3+5}{-4} = \frac{2}{-4} = -\frac{1}{2}$

1(iii) $5x^2-2x-10=0$

$D = b^2-4ac$

$= (-2)^2-4\times5(-10)$

$= 4+200$

$= 204$

$x = \frac{-b\pm\sqrt{D}}{2a}$

$= \frac{2\pm\sqrt{204}}{2\times5}$

$= \frac{2\pm2\sqrt{51}}{10}$

$x = \frac{2+2\sqrt{51}}{10} = \frac{1+\sqrt{51}}{5}$ | $x = \frac{2-2\sqrt{51}}{10} = \frac{1-\sqrt{51}}{5}$

1(iv) $\frac{1}{2x-3}+\frac{1}{x-5}=1,\ x\neq\frac{3}{2},5$

$\Rightarrow \frac{x-5+2x-3}{(2x-3)(x-5)}=1$

$\Rightarrow \frac{3x-8}{2x^2-13x+15}=1$

$\Rightarrow 2x^2-13x+15=3x-8$

$\Rightarrow 2x^2-16x+23=0$

$D = (-16)^2-4\times2\times23$

$= 256-184$

$= 72$

$x = \frac{-b\pm\sqrt{D}}{2a}$

$= \frac{16\pm\sqrt{72}}{2\times2}$

$= \frac{16\pm6\sqrt{2}}{4}$

$= \frac{2(8\pm3\sqrt{2})}{4\,2}$

$= \frac{8\pm3\sqrt{2}}{2}$