PRACTICE QUESTIONS 2

Solve the following equations:

a) $2x - 3 = x\sqrt{2} - 2\sqrt{2}$

b) $3x + \sqrt{3} = 2x\sqrt{3} + 1$

c) $\frac{x}{2} - \sqrt{5} = x\sqrt{5} + 3$

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

e) $\frac{2x + 1}{5} + \frac{2 - x\sqrt{2}}{2} = \frac{1}{10}$

f) $\frac{3 - 2x\sqrt{7}}{2} - \frac{\sqrt{7} - x}{3} = 2$

Solve the following inequalities

a) $x - 5 < x\sqrt{2} + \sqrt{2}$

b) $4x - \sqrt{3} \leqslant 2x\sqrt{3} + 6$

c) $\frac{4x + 1}{3} - 2\sqrt{5} \geqslant x\sqrt{5}$

d) $\frac{x + 2\sqrt{2}}{2} - \frac{x\sqrt{2} - 3}{3} > 2$

e) $\frac{4x + 5}{6} + \frac{2 - x\sqrt{2}}{2} > 2\sqrt{2}$

f) $\frac{x\sqrt{11} - 3}{2} - \frac{\sqrt{11} - 2x}{3} < 1$

Solve the following inequalities

a) $\frac{2}{x} > 5$

b) $\frac{3}{x} < -1$

c) $\frac{2x - 3}{x(x - 2)} \geqslant 0$

d) $\frac{x + 2}{(x - 1)(2x + 5)} > 0$

e) $\frac{(x^2 - 4)(x^2 + 1)}{x^2 - 9} \leqslant 0$

f)* $\frac{x + 2}{x - 1} - \frac{x}{x + 7} > 0$