6. If A belongs to a st. line, ∴ coordinates of A should satisfy the eqn of st. line ∴

$$A\left(2^{-1}-\frac{3}{5}\ ;\ (\sqrt{2}-1)^2+2\sqrt{2}\right)$$

$$2^{-1}-\frac{3}{5}=\frac{1\times 5}{2\times 5}-\frac{3\times 2}{5\times 2}=\frac{5-6}{10}=\frac{-1}{10}$$

$$(\sqrt{2}-1)^2+2\sqrt{2}=2+1-2\sqrt{2}+2\sqrt{2}=3$$

$$A\left(\frac{-1}{10},3\right)$$

Sub. coordinates of A in:

$$y=10x+4$$
$$3=10\left(\frac{-1}{10}\right)+4$$
$$3=-1+4$$
$$3=3.$$

Then, A belongs on st. line of eqn $y=10x+4$.

2nd exercise:

1) $(d): 2y+6=x$

$$2y=x-6$$
$$\therefore y=\frac{1}{2}x-\frac{6}{2}$$
$$y=\frac{1}{2}x-3.$$

$(d'): y+2x=5$

$$y=-2x+5.$$

Compare slopes:

$$\left(\frac{1}{2}\right)(-2)=\boxed{-1}.$$

Then, product of slopes $=-1$.

Thus, $(d)$ & $(d')$ are perpendicular.

2) (on graph)