

للإجابة

2nd - exercise:

$$1) a) S = \frac{1}{a} + \frac{1}{2a} + \frac{1}{3a} + \frac{1}{6a}$$

$$= \frac{6+3+2+1}{6a} = \frac{12}{6a} = \frac{2}{a}$$

$$\therefore S = \frac{2}{a}$$

$$b) \frac{2}{7} = S \text{ for } a=7$$

$$\text{So, } \frac{2}{7} = \frac{1}{7} + \frac{1}{2(7)} + \frac{1}{3(7)} + \frac{1}{6(7)}$$

$$\therefore \frac{2}{7} = \frac{1}{7} + \frac{1}{14} + \frac{1}{21} + \frac{1}{42}$$

$$2) AB = \sqrt{4+\sqrt{7}} \quad \& \quad BC = \sqrt{\frac{7}{2}} + \sqrt{\frac{1}{2}}$$

$$1. AB^2 = (\sqrt{4+\sqrt{7}})^2 = 4+\sqrt{7}$$

$$BC^2 = \left(\sqrt{\frac{7}{2}} + \sqrt{\frac{1}{2}}\right)^2 = \frac{7}{2} + 2\left(\sqrt{\frac{7}{2}}\right)\left(\sqrt{\frac{1}{2}}\right) + \frac{1}{2}$$

$$BC^2 = \frac{8}{2} + 2\sqrt{\frac{7}{4}} = 4 + \frac{2\sqrt{7}}{2}$$

$$\text{So, } BC^2 = 4 + \sqrt{7}$$

$$\text{Since } AB^2 = BC^2$$

$$\therefore AB = BC$$

2) since adjacent sides of rectangle ABCD are equal

\therefore ABCD is a square

$$3) (\sqrt{7}+1)^2 = 7 + 2\sqrt{7} + 1 = 8 + 2\sqrt{7}$$

4) ABC is a triangle right at B (angle in a rectangle)