17 Here are a solid sphere and a solid cylinder.

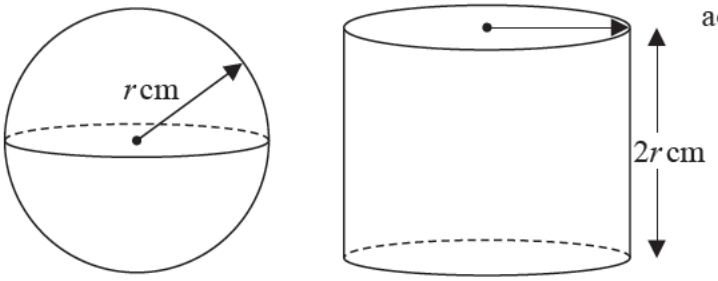


Diagram **NOT** accurately drawn

The radius of the sphere is r cm.
The radius of the cylinder is r cm.
The height of the cylinder is $2r$ cm.

The total surface area of the cylinder is $k\pi$ cm^2

(a) Find an expression for k in terms of r.

(2)

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(b) Show that the ratio

total surface area of the cylinder : total surface area of the sphere

is the same as the ratio

volume of the cylinder : volume of the sphere

(3)

(Total for Question 17 is 5 marks)

18 Show that $\frac{\sqrt{8}}{\sqrt{8}-2}$ can be written in the form $n+\sqrt{n}$, where n is an integer.

Show your working clearly.

(Total for Question 18 is 3 marks)

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