a)
An ornamental sphere is formed of an alloy of two metals, A and B.
Metal A has density $14g/cm^3$ and metal B has density $20g/cm^3$.
The sphere is formed using 364g of metal A and 270g of metal B.

Show that the ornamental sphere has surface area $56.1cm^2$ to three significant figures.

What volume of each metal was used? What is the volume of the alloy?	Metal A: $\frac{364}{14} = 26cm^3$ Metal B: $\frac{270}{20} = 13.5cm^3$ $26cm^3 + 13.5cm^3 = 39.5cm^3$
What is the volume of the sphere?	$\frac{4}{3}\pi r^3 = 39.5cm^3$
What is the radius of the sphere?	$(39.5 \times 3) \div 4 = 29.265$ $29.265 \div \pi = 9.42993038$ $\sqrt[3]{9.42993038}$ =2.11269187cm
What is the surface area of the sphere?	$4\pi r^2 = 4 \times \pi \times 2.11269187^2$ $56.08958003cm^2$ $= 56.1cm^2$

b)
An ornamental sphere is formed of an alloy of two metals, A and B.
Metal A has density $20g/cm^3$ and metal B has density $14g/cm^3$.
The sphere is formed using 364g of metal A and 270g of metal B.

Show that the ornamental sphere has surface area $54.2cm^2$ to three significant figures.

What volume of each metal was used? What is the volume of the alloy?	Metal A: $\frac{364}{20} = 18.2cm^3$ Metal B: $\frac{270}{14} = 19.28571429cm^3$ $18.2cm^3 + 19.28571429cm^3 = 37.48571429cm^3$
What is the volume of the sphere?	$\frac{4}{3}\pi r^3 = 37.48571429cm^3$
What is the radius of the sphere?	$(37.48571429 \times 3) \div 4 = 28.11428572$ $28.11428572 \div \pi = 8.94905509$ $\sqrt[3]{8.94905509}$ =2.07615159cm
What is the surface area of the sphere?	

b)
An ornamental sphere is formed of an alloy of two metals, A and B.
Metal A has density $20g/cm^3$ and metal B has density $14g/cm^3$.
The sphere is formed using 560g of metal A and 560g of metal B.

Show that the ornamental sphere has surface area $80.5cm^2$ to three significant figures.

What volume of each metal was used? What is the volume of the alloy?	Metal A: $\frac{560}{20} = 28cm^3$ Metal B: $\frac{560}{14} = 40cm^3$ $28cm^3 + 40cm^3 = 68cm^3$
What is the volume of the sphere?	
What is the radius of the sphere?	
What is the surface area of the sphere?	

d)
An ornamental sphere is formed of an alloy of two metals, A and B.
Metal A has density $8g/cm^3$ and metal B has density $10g/cm^3$.
The sphere is formed using 350g of metal A and 480g of metal B.

Show that the ornamental sphere has surface area $98.4cm^2$ to three significant figures.