27th September	
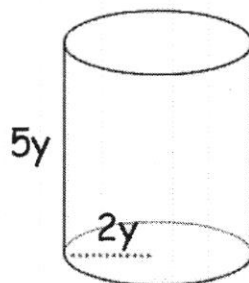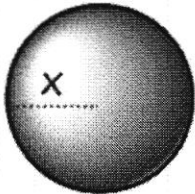| The line passing through (−8, −9) and (−2, h) has a gradient of −1.4

Find h. | $\dfrac{h+9}{-2+8} = -1.4$

$h + 9 = -8.4$

$\underline{h = -17.4}$

Corbettmaths |
| A sphere has radius x cm.
A cylinder has radius 2y cm and height 5y cm.

The surface area of both shapes are equal. | Show $x : y = \sqrt{7} : 1$

Sphere $SA = 4\pi r^2 = 4\pi x^2$

Cylinder $SA = 2\pi r h + 2\pi r^2$

$\qquad = 2\pi(2y)(5y) + 2\pi(2y)^2$

$\qquad = 28\pi y^2$

$4\pi x^2 = 28\pi y^2$

$\Rightarrow \dfrac{x^2}{y^2} = 7$

$\Rightarrow \dfrac{x}{y} = \sqrt{7}$

$\Rightarrow \underline{x : y = \sqrt{7} : 1}$ |
| Solve the simultaneous equations

$\quad 2x + 5y + z = -6 \quad (1)$

$\quad 3x - 3y + 8z = 149 \quad (2)$

$\quad 4x + 2y - 5z = -47 \quad (3)$ | $(1) \times 8 - (2) \quad 13x + 43y = -197 \; (4)$

$(1) \times 5 + (3) \quad \underline{14x + 27y = -77 \; (5)}$

$(4) \times 27 - (5) \times 43 \quad -251x = -2008$

$\qquad\qquad\qquad \Rightarrow \underline{x = 8}$

$\qquad\qquad\qquad \Rightarrow \underline{y = -7}$

$16 - 35 + z = -6$

$\qquad\qquad \Rightarrow \underline{z = 13}$ |